



FRIDAY, JUNE 20.

## Improved Radial Drilling Machine.

We illustrate herewith an improved form of Radial Drilling Machine, made by Alfred Box & Co., of Philadelphia. It will be seen that in addition to the usual motion round a vertical pin the whole radial arm swings completely round on its own axis, and is therefore capable of drilling a horizontal hole. The principal novelty in the gear of the machine is the use of a belt in place of the usual bevel wheels.

The belt passes from the driving pulley at the bottom of

circular base of the radial arm is graduated, so that the drill can be accurately set to drill at any angle. The flat surfaces on the radial arm, etc., are scraped, and the workmanship of the whole tool appears to be excellent.

## Contributions.

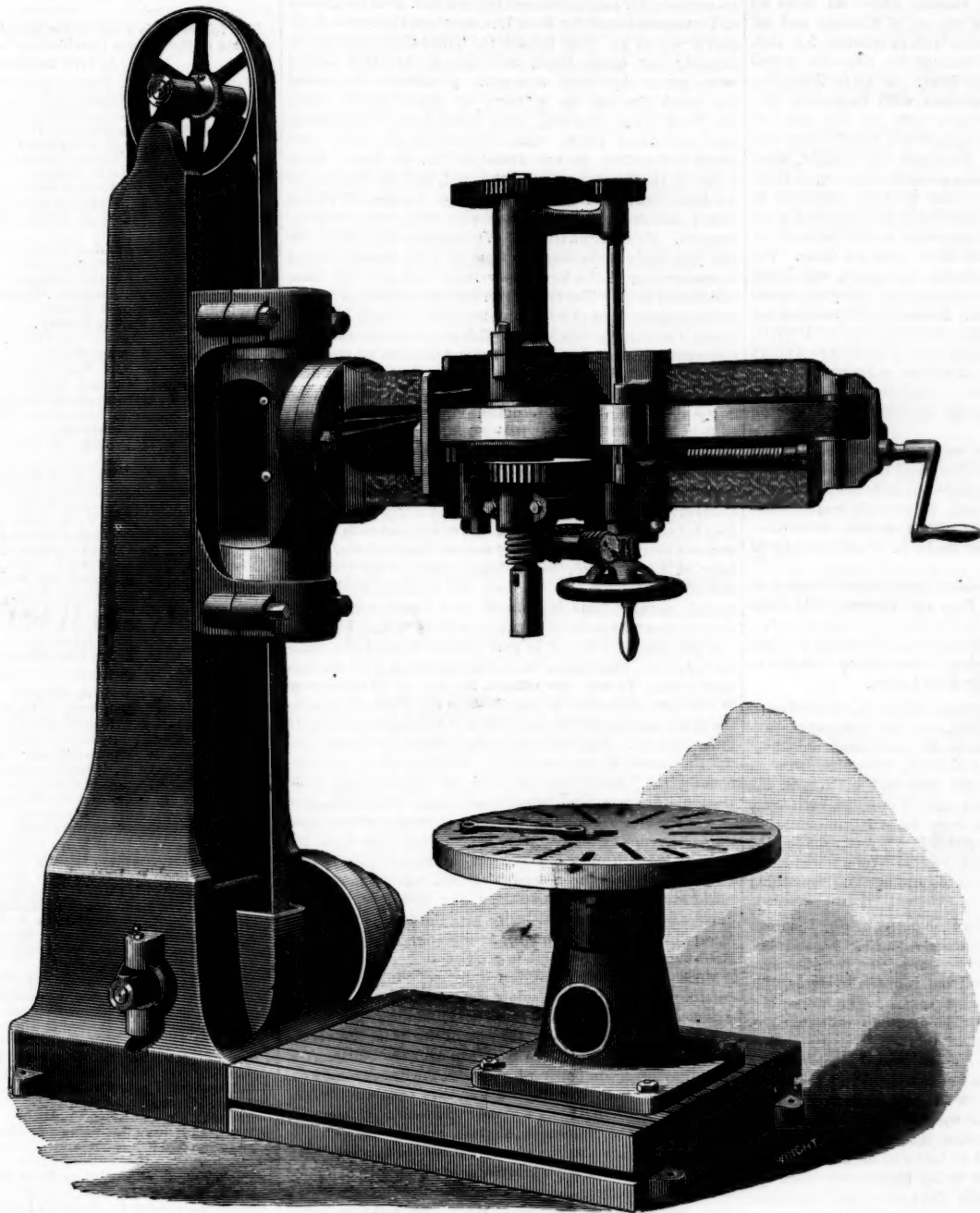
## The New England Clearing House.

Railway Clearing House Association,  
BOSTON, Mass., June 10, 1884.

TO THE EDITOR OF THE RAILROAD GAZETTE:

I have read your comments on my letter in your issue of the 6th inst., and would say in response that your anonymous correspondent may, as you say, have had experience in interchanging cars with New England roads, but this does not prove that he has any knowledge whatever of the "So-called Clearing House at Boston," which any impartial judge can see is the principal object he aims to attack. I

a recently reported great run over the Cincinnati, Hamilton & Dayton, but here is this marvelously rapid running sustained for six consecutive miles, a feat which must go upon the record as unparalleled. In the splendid record achieved by the Cincinnati, Hamilton & Dayton special the distance of 201 miles was accomplished in an average actual time of 49½ miles per hour. The Baltimore & Ohio in a run of two and a quarter times the distance, to wit, 463 miles, maintained the amazing average of nearly half a mile greater per mile than the Cincinnati, Hamilton & Dayton average. The Pennsylvania's special remarkable run from New York to Pittsburgh, 444 miles in ten hours, stood for years unparalleled for the distance. It was made without a stop, the coal being carried and the water taken from tanks between the rails. The Baltimore & Ohio special ran 19 miles farther in 50 minutes less time. While determined to make a fine run there was no extra preparation, as the situation was such that no ex-



IMPROVED RADIAL DRILLING MACHINE.

Built by ALFRED BOX & Co., Philadelphia.

the hollow pillar to a guiding pulley in the base of the radial arm inside the sliding head. The belt then passes along the radial arm, and half round a large driving pulley on the drill spindle, being kept to its work by a couple of small guiding pulleys. The belt then runs over a pulley at the end of the radial arm, back to another guiding pulley in the sliding head, and thence to a pulley at the top of the pillar, whence it returns to the driving pulley at the base, having completed the circuit of the machine. The top pulley bearings are provided with screw gear for tightening the belt. This arrangement certainly seems to give a smoother and easier motion to the drill than bevel gearing, and diminishes the noise and friction. The radial arm can be swung, or the drill placed at any angle from the vertical, without affecting the length of the centre line of the belt, which, even when drilling horizontally, is only twisted a quarter turn. The tension of the belt is therefore practically unaffected by the position or angle of the drill.

The drill spindle is back geared in a manner similar to that used on lathes, and as the back gearing is close to the work there is little chance for chattering or torsion. The

reiterate what I have already said, that he either knows absolutely nothing of the Clearing House or its workings, or he deliberately states what he knows to be false. I have nothing further to say on the subject at present.

Yours truly,

E. B. HILL, Manager.

## The Baltimore &amp; Ohio Fast Run from Chicago to Washington.

TO THE EDITOR OF THE RAILROAD GAZETTE:

So much has been said of the remarkable run of the special train over the Baltimore & Ohio conveying the Washington correspondents from Chicago to the National Capital that fuller details than those already given cannot but prove of decided interest. The Baltimore & Ohio management can well feel proud in having beaten all previous records for the distance, and for that matter short runs as well, for it is doubtful if the wonderful burst of speed when six miles were covered in four minutes has ever been equaled. A single mile in 45 seconds is made much of in

tended notice could be given of the day of departure from Chicago. The understanding with the newspaper men was that the special would leave at two o'clock on the afternoon following the final adjournment of the convention. It was not known positively until Friday evening, the 6th, that adjournment *sine die* would be made, and on Saturday the 7th, at 2:10 p. m., the special, consisting of combined car, dining car, two Baltimore & Ohio sleepers and the Mann boudoir car "Adelina Patti," pulled out. Mr. F. H. Britton, Superintendent of Transportation of the Chicago Division, personally supervised matters and accompanied the train to the end of his division. Engineer J. Mitchell ran the special to Garrett with engine No. 601, made at the company's shops at Mount Clare. The speed of all trains for the 11 miles over the Illinois Central, upon which track the Baltimore & Ohio enters Chicago, is rigidly kept down to a rate not to exceed 15 miles per hour, and this, as a matter of course, must materially effect a general average. Not as in the case of the Cincinnati, Hamilton & Dayton, hitherto cited, was the track of the Baltimore & Ohio cleared for the run, but in no wise was

the operation of regular trains suspended or interfered with in the slightest. This was plainly indicated in the fact that all trains on the day in question and the succeeding morning arrived in Chicago on time. There are no less than 17 railroad crossings on the Chicago Division alone, several of which are at such distance from the Baltimore & Ohio station as to require two full stops. From Chicago to Garrett, 143 miles, the special made in all 13 stops, three times for water and several times for orders. Several remarkable spurts were made, and the longest run with but a single stop was 41 miles, which was covered in 47 minutes, the dining car in the meantime being filled with newspaper men eating and enjoying themselves. A mile a minute was frequently beaten for several miles in succession, and the experience of daring journalists who succeeded one another in enjoying the prospect from the engine cab was such as to form no end of material for exciting narration. Leaving Chicago at 2:10 the arrival at Garrett was at 5:25—three hours and 15 minutes for the 143 miles, or an average of a fraction above 44 miles an hour. Deducting for the slow run out of Chicago and for the 13 stops but 39 minutes—this is three minutes for each stop and not counting the run through the city—the actual time averaged is 55 miles an hour. At Garrett engines were changed, Engineer Boardman with locomotive No. 647 going to the front. Leaving at 5:35 the 128 miles to Chicago Junction were run in three hours, with 11 stops and time for water.\* Five trains, passenger and freight, were passed on this run, necessitating careful watching, as there was anything but the absence of the greatest judgment in the management of things. Deducting 33 minutes for the 11 stops the actual time was two hours and 27 minutes, or an average for the 128 miles of 52.63 miles per hour. The entire run from Chicago Junction, 271 miles, was made from 2:10 to 8:35 p. m., six hours and 25 minutes, or an average of 42½ miles per hour. Deducting 72 minutes for the 24 stops and eight minutes for the stop at Garrett, changing engines, etc., the actual time is reduced to 5 hours and 5 minutes, or an average of within a fraction of 53½ miles an hour, as against within a fraction of 49½ miles as made for 70 miles less distance on the Cincinnati, Hamilton & Dayton.

Some wonderful quick runs were made at times. In one instance, when George Alfred Townsend was on the engine, 8¼ miles were made in 7 minutes—one mile in 49 seconds; three in succession in 52, 55 and 56 seconds, respectively. At another time, when Barrett, of the Boston *Advertiser*, was in the cab, 6½ miles were made in 5 minutes and 26 miles in an even 26 minutes.

At Chicago Junction Thomas Fitzgerald, Master of Transportation of the Lake Erie and Central Ohio divisions, took matters in hand, and, boarding locomotive No. 735, with William Armstrong engineer, at once set the pace which demonstrated that the boys were going through to the Ohio River as no train ever went before.

The night was superb, the moon rendering the landscape almost as clear and bright as day, and the newspaper boys took turns in enjoying it from the firemen's seat until long after midnight. The run to Newark, 88 miles, was as smooth and slick as though the way had been upon the calmest water. Done in 2 hours and 5 minutes, with three stops, the record would have been fully 10 minutes less had not the engine failed for steam just before reaching the end of the division. Even as it was the average was nearly 44 miles an hour, and the actual running time something less.

At Newark locomotives were changed again, Engineer Henry Longshore taking the train with No. 727, and then commenced one of the most marvelous records ever achieved. The first 25 miles from Newark to Gainesville were accomplished with apparent ease in 26 minutes, Mr. Fitzgerald still on the engine. The next 26 miles to Cambridge were done in less than 28 minutes. Several trains on sidings had to be passed on a down grade, necessitating a little pulling up, but when the top of Barnesville grade was reached old No. 727 was thrown wide open and flew as if the devil himself was after her. It was a thrilling ride, one such as most men scarcely take oftener than once in a lifetime. Looking out, the moon bathed all below in the halo of witching light, but on board the flying train every open eye dilated to much greater width than everyday experience would warrant. But few were awake, all the newspaper boys, tired and worn with the exacting duties of the week, slept as if tucked in their little beds within the shadow of the capitol's dome. The train men, porters and others who did look out upon the night saw the earth disappear as if swallowed in a single mighty gulp. Through deep cuts that gave back roars of indescribable fury, under bridges that swished over head as if hurled backward by a tornado, the unutterable thrill of a 90 miles per hour hurl through space was experienced and never to be forgotten as the 6 miles from Belmont to Warnocks was compressed into 4 short minutes. As the stop signal at Bellaire flashed like a shooting star ahead, the whistle shrill and almost startling blew down brakes, and watches marked 28 minutes for the 27 miles. It was but 31 minutes past one, and the 103 miles from Newark accomplished since eight minutes past 11, with six stops and quite a distance run with great care to pass side-tracked trains, an average of 43 miles an hour. Taking out 22 minutes for the stops and slow-ups, the actual time was 2 hours and 4 minutes, an average of 50 miles per hour.

The special's full time from Chicago to the Ohio River, 463 miles, was 11 hours and 20 minutes—leaving at 2:10 p. m., and arriving at 1:31 a. m., an average for the entire distance, including the slow run out of Chicago, changing engines twice, 35 stops and all else, of 41 miles an hour. Deducting the stops, the actual running arrives at amazing

proportions and goes upon record unquestioned as the fastest ever made. Taking out three minutes each for the 35 stops at railroad crossings, water tanks, etc., etc., 9 minutes at Newark, 8 at Chicago Junction and the same at Garrett, the actual running time is brought down to 9 hours and 10 minutes—the astonishing average of 50½ miles for the 463 miles as against 49½ for 301 miles on the Cincinnati, Hamilton & Dayton, and 44 miles for 444 miles on the Pennsylvania. In this unprecedented run are, it is claimed by the Baltimore & Ohio, the fastest six miles, the fastest 16 miles, the fastest 125 miles, the fastest 143 miles, the fastest 271 miles, and the fastest 463 miles on record.

East of the Ohio, over the Main Line, no particular effort at fast time was made, the special falling in behind regular No. 5 at Benwood, and running second section to Grafton. At that point the special was run around No. 5, and taking her time ran as first section. The intention upon leaving Chicago was to make Washington within 24 hours, and such remarkable time had been made to the Ohio that there was no necessity for any spurring on the east end. Still the Master of Transportation of the Main Line concluded to demonstrate that it was in no wise behind the Trans-Ohio divisions in capacity for quick work, and thus it was that orders were given by that energetic gentleman to wind the great run up in a blaze of glory as it were. At Washington Junction, 42½ miles from Washington, engineer Amos Reed, with locomotive No. 809, was given instructions to run ahead of No. 5's time. Reed is one of the finest runners on the road, and the way he cut her loose was inspiring. At Monocacy, 6 miles, the record was 7 minutes; thence to Rockville 30½ miles in 21½ minutes. From Rockville to Washington, 16½ miles, the run was made in the amazing time of 14½ minutes, a half dozen or more of the newspaper men timing it with their watches in hand. The entire run was accomplished in the extraordinary time of 42½ minutes—just a shade less than a mile a minute the whole way. This completed the run from Chicago to Washington in 22 hours and 40 minutes, as it was 10 minutes of 3, Eastern time, or 10 minutes of 2, Central time, and the Special had left Chicago 10 minutes past 2 the day before. The actual running time from Chicago to Bellaire was 9 hours and 10 minutes. The actual time from the river to Washington, counting in the slow run over the Ohio River, the changing of engines at Benwood, Grafton, Keyser and Martinsburg, a half hour for breakfast at Cumberland, and 13 other stops, was 11 hours and 20 minutes for the 449 miles. Deducting five minutes each for the stops at Benwood, Grafton, Keyser and Martinsburg, a half hour at Cumberland, three minutes each for the 13 stops, and 10 minutes for the run over the Bellaire Bridge, the actual running time is reduced to 9 hours and 40 minutes, or an average of 36½ miles per hour.

If this time in whole or in part can be excelled, the Baltimore & Ohio challenges its accomplishment, with the lists open to all. To cap the climax, the run of 40 miles from Washington to Baltimore was made in 39 minutes, making the grand average of the whole trip of 842 miles of fully 44 miles an hour. With such an achievement in its entirety the Baltimore & Ohio strikingly maintained its pre-eminence as the "model fast line" of the country, and, more than this, has now established its position as the model fast line of the world, courting the sharpest rivalry of the great lines of Europe as well as America. It has ever been the boast of the Baltimore & Ohio that its motive power, constructed as it is in the company's shops, was the most capable of fast running in the country and certainly with engineers of such doubtless nerve and sterling judgment as Messrs. Mitchell, Boardman, Armstrong, Longshore and Reed the boast has been made good.

Much interest was manifested by railroad men in the running of the Mann boudoir car "Adelina Patti," which was courteously tendered by Colonel Mann for the use of journalists, and attached to the rear of the train. She is the highest car on her trucks ever run over the Baltimore & Ohio, having 42 in. paper wheels, with the flange somewhat more shallow than upon the regular cars run over the line. No such car for steady and almost motionless riding ever passed over the Baltimore & Ohio, and the almost non-resistance to curves at the highest rate of speed was a veritable revelation. The newspaper men were greatly delighted with the luxurious accommodation, the noiseless running and perfect steadiness, while the rail-men could hardly believe their experience. Colonel Mann was unanimously voted the king of car-designers, and the "Patti" the very queen of cars. Despite the fact that the Mann car was linked to the train, owing to her having the Miller coupling, while that in use on the Baltimore & Ohio is the Janney, she sailed at the rear of the train as gracefully as a swan, at a speed rarely less than 45 miles an hour, and from that up to a rate of 50, 60, 65, 77 and 90.

No more severe a test could have been given, and no car ever sustained a test more successfully.

#### A New Electric Signal.

A novelty in the way of electric railroad signals is shown by a working model at No. 24 Congress street, and is well worthy the attention of railroad managers. There are several systems of electric signals for protecting trains from danger, and the "block system," by which the road is divided into sections, each complete in itself and having its danger signals scattered along the road at certain points, is one of the most perfect. All these systems, however, depend upon the eyesight of the engineer of each train for their effective working, and in case of a blinding snow-storm or an impenetrable fog the engineer may be unable to see the danger signal in time to stop his train before it crashes into another train, or is thrown from the track by some obstruction. By the invention now under consideration, no matter how thick the snow-storm or how dense the fog, the engineer is told in his cab whether the track is clear or not. The apparatus consists of a generator of

electricity placed on the engine, and connected with the rails by a suitable device to convey the electric current to the generator. In the cab, over the head of the engineer, is placed a gong and target, which works as follows: When a train is entering upon a section of road, if the tracks are all clear, the rails all in place, the switches and drawbridges all closed, the gong will ring a safety signal; but should there be a train or hand-car or any other obstruction upon the track, a switch or drawbridge open, the gong will strike a danger signal and the target will appear before the eyes of the engineer, upon which are the words "Danger! Stop!" and this target will remain at danger until the entrance is made on the next section, when it returns to safety, ready for the next signal. Another most important feature is that all switches and drawbridges are locked by the train immediately upon entering the section where such switches or drawbridges exist, and cannot be opened by the switchman or drawtender until the train has passed, so that no train can be thrown from the track by a switch being opened after the safety signal has been given to the engineer before entering the section, and before he can reach the switch or drawbridge.—*Boston Herald*, May 30.

#### Master Car-Builders' Convention.

The following is a list of the members present at the Convention of the Master Car-Builders' Association last week:

##### ACTIVE MEMBERS.

Bissell, Thomas A., Barney & Smith Manufacturing Co.  
Carter, E. D., Vandalia Line.  
Chamberlain, I. T., Boston & Albany.  
Davenport, W. R., Erie Car Works.  
Demarest, George W., Northern Central.  
Donady, R., New York Central & Hudson River R. R.  
Doran, I. E., Boston & Albany.  
Ensign, Sidney P., Ensign Manufacturing Co.  
Fletcher, John B., National Car Co.  
Garey, C. E., Harlem Division, New York Central & Hudson River.  
Gause, I. T., Harlan & Hollingsworth Co.  
Gore, C. E., Lafayette Car Works.  
Hackett, George, Central Division Philadelphia & Reading.  
Hackney, George, Atchison, Topeka & Santa Fé.  
Hall, J. H., Boston & Lowell.  
Hill, John, St. Paul & Duluth.  
Hitchcock, R., Connecticut River.  
Hodge, John, Missouri Pacific.  
Hoit, D., Gilbert Car Manufacturing Co.  
Irwin, Samuel, Missouri Pacific.  
Kirby, T. B., Lake Shore & Michigan Southern.  
Leighton, James T., Jackson & Sharpe Co.  
Marden, A. H., Fitchburg.  
McCarthy, H. C., Phila. & Erie Division Pennsylvania Railroad.  
McDevitt, B., Chicago West Division R. R.  
McPherson, Reuben, Flint & Pere Marquette.  
McWood, William, Grand Trunk.  
Milham, I. N., New York, Lake Erie & Western.  
Orton, John, New York Central & Hudson River.  
Packard, L., New York Central & Hudson River.  
Phelps, B. N., New York & Harlem, City Line.  
Richardson, John, Cincinnati Southern.  
Smith, C. A., Union Trunk Line.  
Smith, Peter, New York Central & Hudson River.  
Stewart, T. B., Hartford & Wethersfield Street R. R.  
Sweeney, John, New Haven & Northampton.  
Wiers, J. H. F., Paige Car Wheel Co.

##### REPRESENTATIVE MEMBERS.

Adams, F. D., Boston & Albany.  
Blackall, R. C., Delaware & Hudson Canal Co.  
Blackwell, Chas., Norfolk & Western.  
Bushnell, R. W., Burlington, Cedar Rapids & Northern.  
Cloud, John W., Pennsylvania; Northern Central; West Jersey; Philadelphia, Wilmington & Baltimore; Alexandria & Fredericksburg, and Baltimore & Potomac.  
Cooper, H. L., Lake Erie & Western.  
Coulter, J. P., Ohio & Mississippi.  
Fuller, William, New York Pennsylvania & Ohio.  
Garey, Leander, New York Central & Hudson River.  
Goodwin, H., Stanley, Lehigh Valley.  
Hovey, Jacob P., Rochester & Pittsburgh.  
Keeler, Sanford, Flint & Pere Marquette.  
Kirby, John, Lake Shore & Michigan Southern.  
Lentz, John S., Pennsylvania & New York.  
Lyons, Henry D., Marquette, Houghton & Ontonagon.  
Mackenzie, John, New York, Chicago & St. Louis.  
Marden, J. W., Fitchburg.  
McGee, James, Houston & Texas Central.  
McKenna, R., Delaware, Lackawanna & Western.  
Miller, Robert, Michigan Central.  
Richardson, D. C., Boston & Maine.  
Rommel, George, Wilmington & Northern.  
Sargent, Geo. M., Minneapolis & St. Louis.  
Soule, R. H., New York, West Shore & Buffalo.  
Sutherland, Thos., Chicago & Grand Trunk.  
Snow, W. B., Illinois Central.  
Titus, H. D., Southern Central.  
Townsend, Joseph, Chicago & Alton.  
Turrell, W. F., Cleveland, Columbus, Cincinnati & Indianapolis.  
Verbruyck, B. K., Chicago, Rock Island & Pacific.  
Wall, E. B., Pittsburgh, Cincinnati & St. Louis.  
Watrous, George C., Detroit, Lansing & Northern.  
Wilder, F. M., New York, Lake Erie & Western.  
Williams, Chas. C., West Jersey.

##### ASSOCIATE MEMBERS.

Forney, M. N., New York.  
Partridge, W. E., National Car-Builders.

##### NEW MEMBERS.

New members were received as follows:  
Armbruster, J., East Tennessee, Virginia & Georgia.  
Billing, Samuel D., Norfolk & Western.  
Canham, H.  
Chamberlain, Eugene, New York Central & Hudson River.  
Divine, John F., Wilmington & Weldon; Wilmington, Columbia & Augusta; Northeastern (South Carolina).  
Ennis, W. C., New York, Susquehanna & Western.  
Finlay, L., Hot Springs Railroad.  
Giffken, E., Savannah, Florida & Western.  
Hautten, G. H.  
Helfrich, H. J.  
Hunter, David W., Providence & Worcester.  
Pickering, S., Boston, Concord & Montreal.  
Travers, James J., Adirondack Railroad.

##### THIRD DAY'S PROCEEDINGS.\*

The proceedings on the third day, Thursday, June 12, opened with the reading of the report of the Committee appointed to inquire into a system of freight car framing (published last week).

A long discussion took place on the various plans of fram-

\* The proceedings on June 10 and 11, the first and second days of the Convention, were briefly reported in the *Railroad Gazette* of June 13, page 440.



ing proposed, which were clearly shown by models. Mr. DAVENPORT favored the style of framing the house or body of the car shown in model No. 3, as the camber could be restored by lightening the tie rods. Mr. WILDER found that iron body bolsters were generally made too narrow, and thought that they were best made in two pieces, connected laterally, so as to give strength to resist the inertia of the truck when the car was struck heavily in switching.

Mr. CLOUD showed the advantages of his proposed framing, double diagonal braces, and single vertical ties. All parts were made to template, each brace being the same length, the camber being given by pitching the braces further apart in the plate than in the sill, so that the vertical ties were radial to the curve to which the car was cambered. In this manner all holes are at right angles to the surfaces, and no diagonal holes are required. Accuracy can thus be more easily obtained.

Mr. WILDER found that old cars that had been running for several years showed the side framing was very important in enabling a car to retain its shape.

The report of the Committee on a Standard Freight Car Truck (which had been read on the first day of the convention and was published last week), was then discussed. In order to definitely settle the main principles on which the future standard freight car truck should be constructed, Mr. CLOUD moved that the committee be continued and instructed that the future standard truck should embody the following points:

5 ft. wheel base.

Diamond form.

Channel iron cross transoms.

Adapted to either swing or rigid bolsters.

These propositions seemed to be universally acceptable to the meeting, but considerable discussion arose as to whether the swing form of truck presented sufficient advantages to make it advisable to adopt it definitely for freight trucks.

Mr. KIRBY's experience showed that a swing bolster possessed no advantage.

Mr. LENTZ asked if this was so why was a swing bolster universally used for passenger trucks?

Mr. DAVENPORT said that the experiments made some time back by the Association showed that the top arch bar of diamond truck must be stronger than the lower or inverted arch bar. If the members of a diamond truck were properly proportioned, the top bar being 3 in. x 1 1/2 in., the inverted arch bar 3 in. x 1/2 in., and the lower bar 3 in. x 1/2 in., that a truck would be obtained capable of carrying the maximum load.

Mr. CLOUD's motion was then put to the convention by the President and carried.

Mr. GEORGE HACKNEY then moved that the standard truck have a swing bolster. A vote was then taken on this point, 32 members being in favor of the swing bolster and 30 against. The convention then adjourned and many of the members proceeded to the Delaware & Hudson Canal Co.'s yard to witness a trial of car couplers.

On reassembling at 3 p. m., after some discussion on the question of continuous brakes for freight trains, the report of the committee on the adoption of a standard car coupler was read and discussed.

It is evident that in order to adopt the best form of car coupler some definite conditions must be laid down which a good coupling should fulfill; and in order to secure some definite expression of opinion from the convention as a whole, the following members laid down the conditions placed against their names:

Mr. WALL. Must couple on a vertical plane.

Mr. F. D. ADAMS. Must not have loose link or pin.

Mr. SANFORD KEELER. Must couple with ordinary link and pin coupler.

Mr. F. M. WILDER. Must be cheap.

Mr. SANFORD KEELER. Must be a valid patent, passed by Eastern and Western Railway Associations.

Mr. CLOUD. Must be mechanically efficient.

Mr. F. D. ADAMS. Must be safe.

Various points regarding various couplers were then stated by Mr. Adams, Mr. Wilder and other members which may be briefly summarized as under:

The Ames coupler furnishes its own link and pin and had been in use on 100 cars for 3 years and on 50 cars for 6 years, and had never broken.

The Cowell coupling had been in use on 100 cars for over a year.

The Gifford coupling is being applied to all cars on the New York, Lake Erie & Western road, which has 2,000 cars fitted.

The Wilson-Walker coupler when coupled to an ordinary link and pin coupling required the use of only one pin, while the Janney or the Cowell required under the same circumstances the use of two pins and one link.

After some further discussion, Mr. C. A. SMITH and the PRESIDENT urged upon the Convention the necessity of settling this question now and not deferring action until next year, when many lines would be too far committed to different patent couplers to reverse their action and adopt a standard. In supporting these arguments Mr. F. D. ADAMS stated that an associated system of lines, owning 100,000 cars, were on the point of adopting a coupling. Rumor states that this refers to the Vanderbilt lines, and the Ames coupler, but this was not confirmed by any speaker of the Convention.

Mr. CLOUD moved "That the best coupling mechanically is that which couples along a vertical plane, so as to couple with care, with unequal height of draw-bars."

Mr. WALL accepted this amendment on his own motion, and it was carried unanimously, making the first important step toward the adoption of a standard coupling for the freight cars of this country.

Mr. KIRBY considered that the standard coupling should carry its own link or pin, and couple readily automatically with the link and pin coupling in common use. After some discussion it was resolved that Mr. M. N. Forney be appointed to examine into the merits of different couplings with a view to the choice of a standard, and that while he was desired to take into consideration Mr. Cloud's motion, the following couplers were also considered to possess considerable merit:

Ames.  
Archer.  
United States.  
Mitchell.  
Wilson-Walker.  
Conway-Ball.  
Gifford.

Mr. R. H. SOULE moved that the railway companies represented in the Convention be asked to contribute *pro rata* to the expenses incurred by Mr. Forney in testing the couplers. This motion was carried unanimously, and the discussion on car couplers closed.

Mr. L. Garey was then re-elected President of the Association, over which he has so impartially and ably presided for the last ten years. Some routine business was then transacted, and the Convention adjourned until its meeting next year at Fortress Monroe, Virginia.

\* The results of these experiments were illustrated in the Railroad Gazette of Nov. 3, 1882, page 672.

#### ADDRESSES AND REPORTS.

President Garey's annual address to the Association is given below, together with several of the reports made by committees and the report of the treasurer:

#### PRESIDENT GAREY'S ADDRESS.

*Gentlemen of the Convention:*—Probably the purpose of the annual meetings of this Association, of which this is the eighteenth, cannot be expressed better than it is in the constitution, which you have adopted, which says:

"Sec. 1. The objects of this Association shall be the advancement of knowledge concerning the construction, repair and service of railroad cars, by discussions in common, investigations and reports of the experience of its members; to provide an organization through which the members, and the companies they represent, may agree upon such joint actions as may be required to bring about uniformity and interchangeability in the parts of railroad cars, to improve their construction and to adjust the mutual interests growing out of their interchange and repair."

Committees have been appointed to make reports on special subjects. These reports will be called up at the proper time for discussion and for such action as you may think is required. It is hoped that those members who have any decided convictions or valuable knowledge concerning the subjects to which these reports pertain will give expression to their ideas and not remain silent, as so many who could make valuable contribution to our discussions so often do.

Of the advantage which results to railroad companies from the adoption of standards it is, perhaps, not necessary to speak here. The performance of your regular duties must convince you of this, and that an enormous saving to railroad companies would result if the construction of those parts of cars which require most frequent renewal could be made more nearly uniform. It is certain, too, that much of the loss of life and injury to employees and others would be prevented if railroad companies could generally be induced to adopt the recommendations of the Car-Builders' Association, which has that end in view.

The growing interchange of traffic makes it daily more important that those parts of cars which require most frequent renewal should be uniform. The accomplishment of this end makes energetic action by the members of the Association imperative.

A standard freight car truck, including the brakes and brake attachments, should be decided upon and recommended for adoption at as early a date as possible. A system of lettering and numbering cars should be perfected and recommended, so that their ownership could be determined upon without the difficulties which are now so often encountered.

Standard detailed drawings of dead-blocks, should be made and published, with the proceedings of this Association, as uniformity in the size and adjustment of these parts on all cars is essential. The matter of freight car couplers has claimed by its importance much attention, the press and our state legislatures, with the officers of railroad companies, have endeavored to effect a change in the manner of coupling freight cars, and inventors by the thousand have spent both time and money to devise some method by which these cars could be coupled automatically, or in such a way as to prevent the necessity of trainmen standing between cars while in the act of coupling.

I would call your attention to the following quotations from the reports of state railroad commissioners on this subject. In their report for 1883 the Commissioners of the state of New York say: "When a satisfactory coupler can be secured the expense is not a matter which ought to delay its adoption. The statute which will compel earnest endeavor on the part of the railroads to solve this question in the interests of humanity ought to be passed with such provisions as to the time of its becoming imperative as would protect railroads from being required to adopt impracticable devices to their pecuniary disadvantage and to the detriment of their business." The Commissioners of the state of Minnesota in their report for 1883, say, "The number of brakemen killed and injured while coupling and uncoupling cars recalls each year the question whether something cannot be accomplished to diminish the loss of limbs and lives resulting from this class of accidents."

The report of the Commissioners of the state of Iowa for the same year, in referring to those killed and injured while coupling cars, says: "We are fully of the opinion that some method of coupling cars should be adopted that would enable them to be coupled without going between them; if this can be done we are inclined to believe that it would justify a large expenditure and relieve the roads from a grave responsibility." The Commissioners of the state of Massachusetts in 1884 reported that "The great number of accidents that are due to the coupling and uncoupling of freight cars, continue to be a subject of regret. One reason for delay that has hitherto been urged with some success has been the hope that the Master Car-Builders' Association would agree upon some one standard freight coupler, which would be adopted by all the railroads in the country and so prevent the necessity of legislation; but the annual meeting of this Association for 1883 has been held, without any advance toward an agreement on this subject. Reliance has been placed on the action of this justly respected Association because of its selection of a standard height for drawbars was so readily adopted, but it should be remembered that the adoption of a standard height costs nothing. Uniformity was clearly desirable, but it did not involve the purchase of a patent right or the rival claims of inventors. For the selection of an automatic coupler the question is complicated by conflicting interests, and in its adoption the obstacle of cost is a serious one. It is probable that the question will never be satisfactorily settled until the law of liability of employers to employees has been thoroughly revised. The working of a just law, covering this whole subject, would be liable to supersede the necessity for special legislation as to couplers or draw-bars."

In the report of the Commissioners of the state of Connecticut it is said: "Whenever a man shall be found among the Master Car-Builders, or, indeed, anywhere, who possesses the enthusiasm, wisdom, judgment, tact, energy and perseverance of W. F. Allen, Secretary of the General Time Convention, who will give himself to the coupler question, it will be solved. The following circular from the Massachusetts Commissioners is dated Boston, May 8, 1884: "All new freight cars owned by Massachusetts railroad companies are, after March 1, 1885, to be equipped with automatic or other safety couplers approved by this board after examination and test thereof."

*Gentlemen:* Committees have been appointed repeatedly by the Association and have made their reports at the adjourned meeting held at Niagara Falls in October, 1882. Your Committee selected and recommended as worthy of trial several couplers, all of which, with others, are in use to some extent. The time has now arrived when the best known couplers should be selected and recommended by the members of the Association for adoption. Precisely how this action should be brought about it is not easy to indicate. It seems, however, that if there are any automatic couplers known to this Association which fulfill the conditions required of such appliances, that the Association should

by suitable resolutions announce that fact for the benefit of railroad companies and the public.

Other necessary standards should be determined upon with as little delay as possible. I take pleasure in complimenting you on the good results which have been brought about through annual meetings of the Association, and trust that the subjects to be presented for your consideration during this meeting will be judiciously disposed of. Thanking you for your kind attention, I now invite all those who may wish to join the Association to sign the constitution, which is in the hands of the Secretary.

#### TREASURER'S REPORT.

Received from M. N. Forney, amount of dues collected by him from members, from June 12, 1883, to June 10, 1884.....	\$1,972.50
Received from sale of Annual reports.....	28.90
<b>Balance due Treasurer June 12, 1883.....</b>	<b>\$2,001.40</b>
Amount paid Secretary for 6 mos. salary.....	500.00
" returned to persons not eligible for membership.....	10.00
Amount paid for stationery.....	30.55
" reporting last annual convention.....	240.00
Amount paid for printing annual reports.....	498.57
" engraving.....	72.25
" postage for year.....	78.00
" printing circulars.....	114.75
" express charges.....	40
Cash on hand.....	350.56
	<b>2,001.40</b>

This report is duly certified to by the Auditing Committee, consisting of Messrs. W. R. Davenport, Robert Miller and J. H. F. Wiers.

#### TRAP-DOOR IN ROOFS OF PASSENGER CARS.

Your Committee to whom was referred the subject of placing a trap-door in roofs of passenger cars would respectfully report that it is advisable and would recommend that hereafter all passenger cars be so constructed as to have an opening in the roof that the cover can be removed in cases of such accidents, as it may be required.

JOHN MACKENZIE, Committee.  
SANFORD KEELER, Committee.

#### STANDARD HOUSE-CAR TO CARRY 60,000 LBS. OF LADING.

The committee appointed at last annual meeting to confer upon a standard house-car, whose maximum load shall be 60,000 lbs., and to report thereon to the Executive Committee (see page 113 of last annual *Proceedings*), would report that they have so conferred together and have agreed substantially upon the dimensions of many of the indifferent parts of such a car. That as a partial result of their labors they have on exhibition at this place three such cars, to which they invite the attention of the members of the Association and of all who are interested in the matter. The committee would esteem it a favor for any member or interested person to criticize these cars freely and to make suggestions to the committee, either verbally or in writing, of any improvement or change for the better which may occur to them.

The committee consider that the work before them is an important one, and that their labors in it have only commenced.

They earnestly recommend that the Association continue to give attention to this matter in such a way as the Association may think best.

H. GOODWIN,  
J. W. CLOUD,  
L. GAREY,  
F. M. WILDER, Committee.  
L. PACKARD,  
W. MCWOOD,  
R. MCKENNA,

#### AUTOMATIC FREIGHT CAR BRAKES.

Your Committee on Automatic Freight Car Brakes respectfully submit the following report.

A series of questions bearing on this subject was circulated by the Secretary among the members of the Association from whom 18 replies were received. Four of these were to the effect that an automatic brake on freight cars was a necessity, while the balance expressed the opinion that an automatic brake was not absolutely required, although its introduction would be desirable.

The advantages to be derived from the use of automatic brakes on freight cars appear very great, but it is possible that they may be counterbalanced by serious disadvantages; for were all freight cars equipped with an automatic brake the failures peculiar to this particular brake would be doubtless encountered to a very much greater extent, and at least in the ratio that the number of cars on a freight train exceeds that of a passenger train. The additional cost of application and maintenance of automatic brakes, and their incidental failures might not be objected to if applied to special cars on roads where trains composed entirely of such cars could be run. Under these circumstances the automatic brake could be operated with greater success than if generally adopted.

H. C. MCCARTY, Committee.  
CHARLES BLACKWELL, Committee.

#### CAR ROOFS.

Your Committee appointed to investigate the subject of Car Roofs regret that lack of time, or rather the multiplicity of duties upon the part of the Chairman has made it impossible to examine the subject as fully as could be wished.

The following circular letter was issued to the members of the Association, and replies were received from twelve members:

"Assuming that the first object of a roof upon box cars is to the protection of the contents of the car from the elements, and second, to assist in giving strength and stiffness to the sides and ends of the car, and considering that car roofs are now commonly classified as follows:

"1. What are known as double-board roofs, with or without felt or other lining between the boards,

"2. Single board roofs covered with tin or other sheet metal,

"Roofs made of metal sheets fastened to car lines, etc., and covered with single boards,

"Which of these forms of roofs, or others of which you may have knowledge, will best meet the following requirements, and what will be the relative cost and cost of repair?

"1. Absolute protection from dampness, caused by rain or snow.

"2. Least danger from being disturbed by wind.

"3. Least danger from being damaged by nails being driven into it and men running over it.

"4. Least danger from fire.

"5. Best style to give lateral and diagonal stiffness to the car top. Also, whether some plan of diagonal bracing or tie rods should not be adopted.

"Please send this committee drawings or points of such a roof as you would recommend as a standard, showing particularly the method of fastening to carlines, ridge-pole, side-plates and end-plates, and also please state your reasons for recommending the particular style of roofing."

There is quite a diversity of opinion in regard to what style of roof is the best, many favoring double-board roofs, some with felting between and some without. Others pre-



fer what is known as the Winslow roof, or one of similar construction, while the universal experience as expressed seems to be against what is known as "tin roofs," that is, single-board with thin metallic covering.

The question of cost will enter largely into the adoption of car roofs as a standard depending to some extent upon where the cars are to be built. In a pine country where lumber is cheap, where good clear pine will not cost more than \$30 per M., the double board roof would probably be fully as cheap as the single-board with tin covering.

But where good pine is \$40 per M. the roof will cost as much as the Winslow or other metal roof, with board covering.

It is the generally considered view by those who answered the circular that the roof should be diagonally stayed, although your Committee has not found any road that has adopted any particular form of bracing.

We deem it almost absolutely necessary in cars having roofs with metal plates either above or below the boards that the roofs should be stayed diagonally.

Cars have been found where the single boards were nailed on to the purlins in pieces running from one purlin to the other, being made up from the short pieces of waste from the sheathing of the cars. These cannot be seen when covered by tin, and as they give no stiffness to the car the twisting of the roof about soon starts the joints in the metal cover and opens the seams to the elements, breaking off the nails and completely destroying the roof.

Mr. Robert Miller, of the Michigan Central Railroad, strongly recommends what is known as the "Hutchins roof," which is a double-board roof with a lining between the boards, made up of felt, canvas and other materials.

Mr. Miller says that with this roof properly put on there is no need of any diagonal bracing, and is found very effective in the repairs of old roofs.

No drawings were sent your Committee, and we have not had time to design any roof which we would recommend, your committee would therefore ask that the subject be continued for another year.

And your committee would like a free discussion of this subject as a ground for their deliberations upon it.

F. M. WILDER,  
R. C. BLACKALL, } Committee.  
D. HOIT,

#### BRAKE-SHOES, BRAKE-BEAMS, AND THE INTERCHANGEABLE PARTS OF THE BRAKE ARRANGEMENTS OF CARS.

The Committee appointed to make a report on this subject prepared the following questions, which were embodied in a circular which was sent to all the members of the Association. A summary of the answers received is given after each question.

1. With your experience, what do you consider the most economical brake-shoe, wrought or cast-iron, or the so-called "Congdon Shoe" (which is a combination of both metals)?

Nine members said they preferred cast-iron shoes; eight preferred the Congdon shoes; four wrought-iron shoes; one preferred shoes made of gun metal; and three did not know what they did want.

2. Do you think that the so-called "Congdon Shoes" are better than either cast or wrought-iron shoes?

The answers to this question were about the same as those to the preceding one, with the exception that two of those who replied claimed that wrought-iron and Congdon shoes had about the same relative qualities.

3. Do you think truss-roads applied to brake-beams are useful?

Those who answered this question approved of truss-roads for passenger cars, but considered them too expensive for freight equipment.

4. Would you recommend either iron or steel as a substitute for wooden brake-beams?

Fourteen members preferred wooden brake-beams; some wrought-iron, and three preferred steel. Among those who thought best to continue the use of the wood there were several who thought that ultimately a metal bar would be adopted.

5. What do you consider the best, solid brake-heads and shoes combined, or independent heads and shoes, made so that shoes may be removed from the heads and renewed?

Twenty-one of the members thought brake-heads independent of the shoes were most desirable, and four preferred a head and shoe combined in one piece.

6. What do you consider the safest and most durable way of hanging up brakes?

Nearly all of those who expressed an opinion preferred that brakes should be hung from the bottom bolster between the wheels. There was but one person who did not agree with this opinion.

7. Would you recommend that brakes be applied to both trucks of each car, and if so, should they be connected?

Nearly all recommended brakes on eight wheels and connected to one brake staff.

8. Do you think that the Congdon shoe wears or cuts steel tires more than cast-iron shoes?

Of the twenty-five who answered this question twelve had no experience with the Congdon shoes, nine thought that they wore steel tires more than cast-iron shoes do, and four had no evidence that they did not, but were not certain about it.

9. Would you recommend what is known as the "Christie" brake-head for adoption? If not, will you state what in your judgment is the best brake-head and shoe?

The expressions of opinion regarding the various shoes were as follows: Six preferred the Collin shoe, which is used on the Pennsylvania Railroad, four the Christie shoe, three the Standard, one the Fowler, and one what he said was known in the western country as the reversible hook. There were three who preferred a standard head and shoe, but did not specify any special kind.

In reviewing the subject your Committee are of the opinion that there would be great economy if standards were adopted of as many of the parts required to hang up brakes as possible, but on account of the great diversity of opinion on the subject we are unable to determine from data obtained which would be the most valuable to recommend to the Convention. As to the necessity of standards, they think it would be of great importance and of great advantage to have some of the parts decided upon and turned over to the Executive Committee for final consideration.

L. PACKARD,  
JOHN S. LENTZ, } Committee.  
J. W. MARDEN,

#### AUTOMATIC FREIGHT-CAR COUPLERS.

Your Committee appointed to make a report on Automatic Freight-Car Couplers would respectfully submit the following:

We have sent out circulars to all representatives of the different car departments, embodying the following questions, namely:

"1. In your judgment would there be a large saving to the railroads of the country by the adoption of a standard Automatic Coupler?"

"2. Would the adoption of such a coupler be safer for trainmen?"

"3. Is it practical or desirable to adopt such a coupler for all new constructions or renewals?"

"4. If so, will you please make any suggestion which

may occur to you as to the best methods to secure these results?"

"5. Which, in your judgment, is the simplest and most economical freight-car coupler in service, all things considered?"

"6. Are there any practical difficulties in the way of adopting a standard automatic coupler?"

"7. If so, please say what, in your judgment, they are?"

"8. If you were asked to adopt a standard freight-car coupler for your road, what one would you select?"

We have received 24 replies, 22 of which have answered in the affirmative, and two in the negative to the first three questions, namely:

"1. In your judgment would there be a large saving to the railroads of the country by the adoption of a standard Automatic Coupler?"

"2. Would the adoption of such a coupler be safer for trainmen?"

"3. Is it practical or desirable to adopt such a coupler for all new constructions or renewals?"

Twenty-two have answered No, and two Yes, to the sixth question, namely:

"6. Are there any practical difficulties in the way of adopting a standard automatic coupler?"

There are a diversity of opinions in answer to the questions 4, 5, 7 and 8, which questions read as follows:

"4. If so, will you please make any suggestions which may occur to you as to the best methods to secure these results."

"5. Which in your judgment is the simplest and most economical freight-car coupler in service, all things considered?"

"7. If any, please say what, in your judgment, they are."

"8. If you were asked to adopt a standard freight-car coupler for your road what one would you select?"

Your Committee have given this subject careful thought and have experimented with a large number of couplers during the past year, and we have also witnessed tests of the various drawbars made at Saratoga.

We have carefully examined all of the models which have been presented at this meeting, and we find such a similarity of principle involved in various ones examined that we would suggest that before their adoption they be referred to the Eastern and Western Associations for their decision as to the validity of patent.

Our classification of the various drawbars is as follows:

Worthy of Special Mention.—Archer; Cowell; United States; Janney; Ames; Mitchell; Wilson & Walker; Conway-Ball coupler.

As Meritorious.—Gifford; Granger; Bernhard; Peace & Sankey; Hilliard; Hitchcock; Prescott; Marks; Howe; Union; Perry; Burrill.

Have also Examined.—Quackenbush; Life and Limb Protecting Car Coupler; Lancaster; Smillie; James Horsley patent balanced car coupler; Barnes coupler; McKeen; Szabins; Williams; Skinner; New Era; Blanden.

In conclusion we would say, that we realize the importance and magnitude of the work which has been given us, and we would therefore urge upon the members of this Association the importance of thoroughly discussing the merits of car couplers.

We think this subject is one which should not be passed over lightly, and think that the different roads we represent and the public at large demand of us a thorough investigation as to the best coupler, and prompt action in recommending its adoption. We would earnestly request that this Association appoint a committee of experts to be present at the trial, or hearing, of the different Railroad Commissioners—or any trial ordered by the Executive Committee of this Association.

J. W. MARDEN,  
F. D. ADAMS, } Committee.  
R. C. BLACKALL,

#### The Relation of Railroad Wheels and Rails to Each Other.

[A Paper by Matthias N. Forney, Read at the Annual Convention of the Master Car-Builders' Association, June 11, 1884.]

At the last convention of this Association a committee submitted forms for the treads and flanges of cast-iron and steel-tired wheels, with the recommendation that they be adopted as standards. They were, therefore, submitted to the Association for approval by letter ballot, but neither of the forms received two-thirds of the votes cast, which the constitution requires before any standard can be adopted by the Association.

The question of a standard form of tread and flange, therefore, stands as it did before the committee made its report. As it seemed to be of the utmost importance that some action should be taken looking to the adoption of a standard, and that this should be done as early as possible, it occurred to the writer that, if the principles which should govern the form of the flanges and treads of wheels were carefully investigated and explained, it might help to secure the adoption of a standard which would be in every way satisfactory. It was with that object in view that the following paper has been prepared. It may be added that while a standard tread, flange and gauge of wheels is important, a standard for the shape of the heads of rails where they come into contact with the wheels and for the gauge of track, guard-rails, frogs, etc., is equally so. A little investigation showed that there was a great diversity in the practice of laying track on different roads, and, therefore, a circular of inquiry was sent to the managers, engineers of permanent way, and master car-builders of all the railroads in North America, to ascertain definitely how much difference actually existed between the different roads. The replies, which have been tabulated, show how great that difference really is. The Executive Committee of your Association finally determined that a conference meeting for the discussion of this subject, to which representatives of the permanent way departments of the various roads should be invited, might help in bringing about a better mutual understanding with reference to the gauge of track and wheels, more uniformity in the practice of those having charge of the car and permanent way departments, and possibly the adoption of standards in each, which would be consistent with each other. The Executive Committee, therefore, instructed the Secretary to issue an invitation to railroad companies to send representatives of the permanent way department of their lines to this meeting of the car-builders for mutual discussion and conference. With this preliminary explanation, and without other introduction, the discussion of the subject of this paper will be taken up.

Figs. 1 to 15 represent the shape of the treads and the flanges of cast-iron wheels made by as many different manufacturers of such wheels, and figs. 16 and 17 represent sections of steel tires used by prominent manufacturers of steel-tired wheels in this country, and fig. 18 represents the standard section of tread and flange used on the German State railroads. In fig. 19 the form of rail-head used on the New York Central Railroad is shown, with the tread and flange, represented by fig. 12, drawn on top of it, in the position it would occupy on the outside of a curve. The relation which the one bears to the other is thus shown clearly, and it will be seen that the load carried by the wheel is supported on the corner of the rail at A, and that the

very small surfaces in contact must resist not only the weight carried, but the lateral pressure of the flange due to the curvature of the track. It is obvious that under these conditions the wheels will be worn so as to conform to the shape of the rails, as indicated by the dotted line B, and that the rails will be worn so as to conform to the shape of the wheels, as shown by the dotted line C. Fig. 20 represents the steel tire shown in fig. 17, on the New York Central rail-head. Fig. 21 shows the Pennsylvania Railroad tread and flange on the standard rail used on that road. These figures show that the rails do not conform to the shape of the throats of the flanges, and that the surface of wheel and rail in contact are very small.

In fig. 22 the standard tread used on the Reading Railroad is shown on the rail laid on the Lehigh Valley line. In this case the corner of the rail does not touch the throat of the flange, but the wheel bears on the top of the rail and the face of the flange comes in contact with the side of the rail head.

Probably very few, if any, rail sections at present in use would fit the sections of treads and flanges shown by the engraving. In some cases the difference would be very great, as has been shown. We have the curious condition of things, that the forms of rails have been designed by one set of men, and the wheel-treads and flanges by another, apparently without any reference to each other.

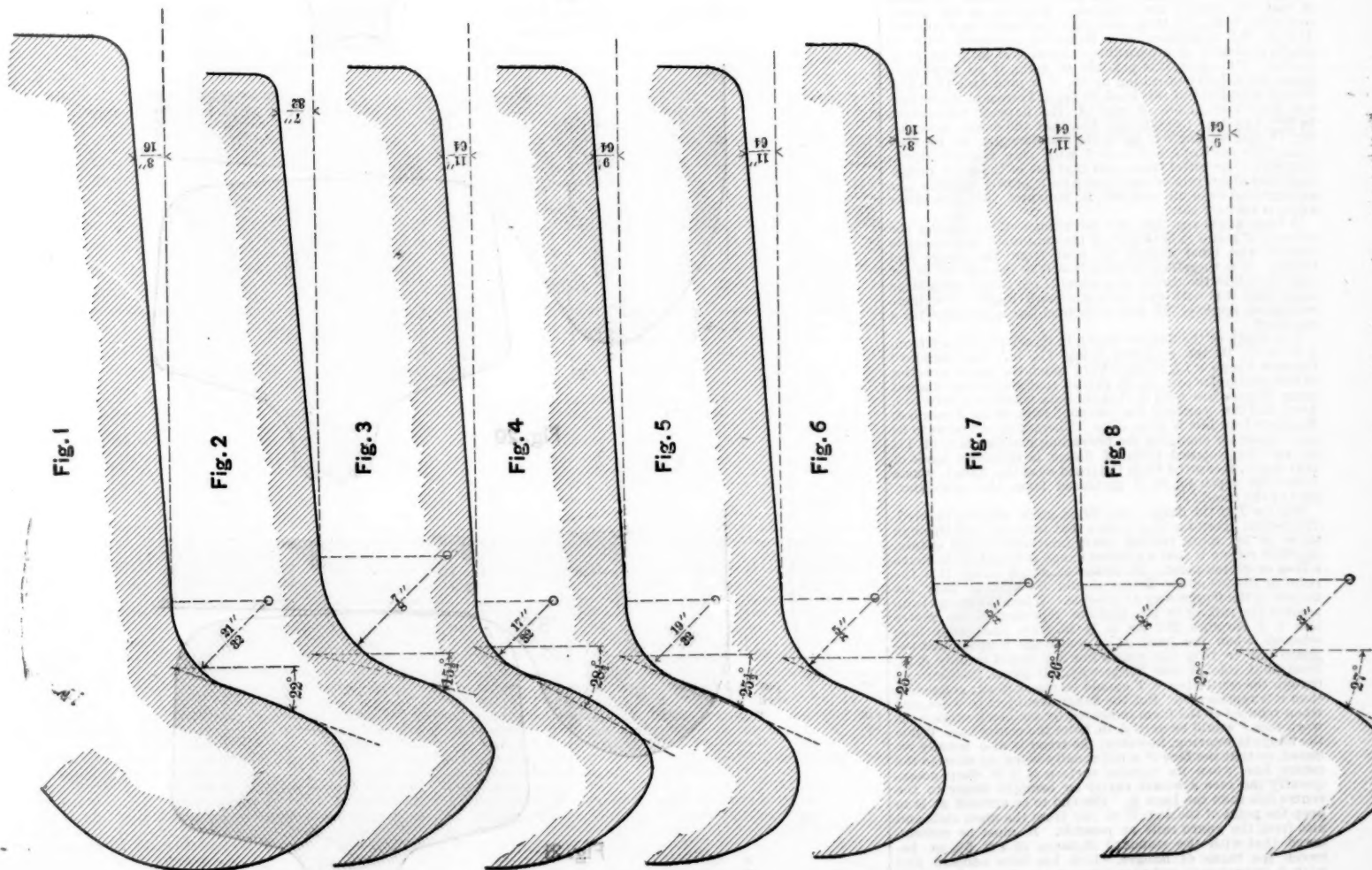
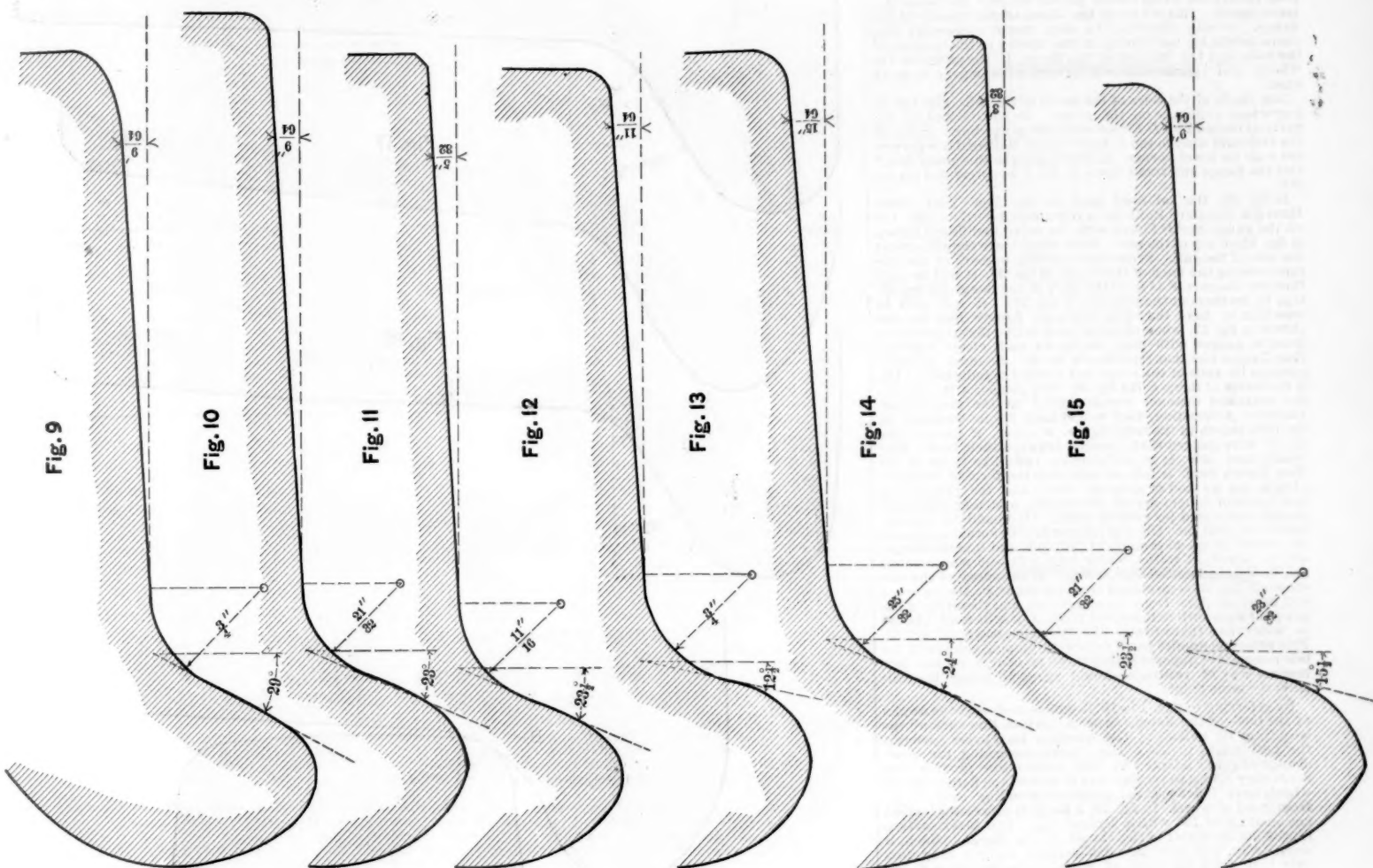
The length of the line in contact at A, in figs. 19 and 20, is approximately  $\frac{1}{8}$  in. It is not easy to determine what the length of the surfaces in contact would be with an ordinary 33-in. wheel, but it is certainly not over  $\frac{1}{8}$  in. The bearing surface would then be of an elliptical figure, with the major and minor axes of dimensions not exceeding those named, the area of which would be only about an eighth of a square inch. As the maximum weight carried by car wheels is now from 5,000 to 8,000 lbs., these bearing surfaces must be subjected to pressures of from 40,000 to 64,000 lbs. per square inch. It is therefore not surprising that they are rapidly worn away, and there is no principle in mechanics more firmly established, or more certain, than that the wear of surfaces in frictional or rolling contact is in an inverse proportion to their area. Therefore, if we should increase the area of the surfaces of the wheel and the rail which are in contact, the capacity of both for resisting wear will be increased. To do this their forms must be made to conform to each other. In other words the treads and flanges of wheels should be made of the same shape as the heads of the rails. Thus, in the case of a rail of the shape shown in fig. 23, the corner of which is curved with a radius of  $\frac{1}{8}$  in., the tread and flanges should also have the same curve so as to coincide with that of the rail as shown. If the radius of the corner of a rail is  $\frac{1}{4}$  in., like that shown in fig. 24, the throat of the flange must also be  $\frac{1}{4}$  in., in order that the two may fit each other. But here comes in a difficulty. The wheels of one road must often run on the rails of another line, and unfortunately the shapes of the rails differ as much as or more than those of the wheels. The curves which form their corners vary all the way from  $\frac{1}{8}$  in. radius to  $\frac{1}{4}$  in. There is no uniformity, but infinite diversity in this particular. If a flange is made to fit the rail illustrated in fig. 23 it will not fit that one shown in fig. 24, and vice versa. It will thus be seen that before we adopt a standard for the treads and flanges of wheels we ought to have one for rails, or at least for the portion of the rails which come in contact with the wheels.

Should the corner of the rails and the throat, as it is called, of the flange be curved with a radius of  $\frac{1}{8}$  in., as in fig. 23, or is  $\frac{1}{4}$  in. better? If the latter dimension is proposed for wheels car-builders will object that with so sharp a corner the flange is weakened where it is most liable to break, and there will be very little metal in the throat to resist the lateral wear of the flange against the rail, and, if the flange of a cast-iron wheel is made of that form, it will be difficult to get a good chill in the throat. As little is known of the real cause or theory of chilling, no reason can now be assigned for this with any certainty that it is the correct one. An examination of a broken chilled wheel shows that the chill extends at right angles from the surface of the tread in what may be called striated lines, as indicated in fig. 24. This effect is due, probably, to the sudden cooling of the melted iron by the chill-mold with which it comes in contact. It may be imagined that the heat in the melted iron is transmitted to the mold in the most direct course possible, as indicated by the lines. It will be noticed that at the throat, opposite to f, those lines are radial to the curved surface and consequently diverge as they extend into the mass of metal, and converge if they are extended outward into the chill mold. Therefore the portion of the mold included in the small section a c p must absorb the heat from the metal included in the surface a d e p. The shorter the radius a c the smaller will be the area of the segment a c p and the greater the disproportion between it and the surface a d e p, and consequently the greater the difficulty of chilling the metal included within that area. It is owing to this difficulty that wheel-makers generally object to a reduction of the length of the radius of the throats of wheels. The most common length in use is probably  $\frac{1}{8}$  in., although the average length of those represented in figs. 1 to 15 is somewhat over  $\frac{1}{8}$  in. If we adopt a radius of  $\frac{1}{8}$  in., which is the least that seems to satisfy a majority of the wheel-makers, and then make the rail to fit it, as shown in fig. 23, which represents a rail rolled by the Scranton Steel Company, we encounter the objection that the top surface of the head of the rail, which is the portion that bears the load, is narrowed too much. Thus the two rails shown in figs. 23 and 25 both have heads  $2\frac{1}{2}$  in. wide at the top, but the width of the surface f g of fig. 25, which supports the vertical load, is  $1\frac{1}{8}$  in., whereas that of fig. 23 is only 1 in. It is therefore not surprising that those who design and are responsible for the wear of rails object to the adoption of a radius for their corners as long as  $\frac{1}{8}$  of an inch. The wheelmen, in fact, want to make this radius as long, and the railmen want it as short as possible. These differences of opinion and of practice must be reconciled before wheels and rails can be made to harmonize with each other. This can be done in three different ways: The rail may be made to fit the wheel, as in fig. 23; or the wheel may be made to fit the rail, as in fig. 24; or both may be altered to fit each other. Expressed differently, the throat of the flange may be made a curve of  $\frac{1}{8}$  in. radius, like the rail in fig. 24, or the corner of the rail may be part of a curve of  $\frac{1}{8}$  in. radius, as in fig. 23; or we might take a mean between the two and make the radii of both the corner of the rail and the throat of the flange say  $\frac{1}{16}$  in.

Before these alternatives are considered, attention will be called to the effect which the shape of the corner of the rail has on the gauge, or rather end-play of the wheels. In figs. 23 and 25, the flanges are the same shape and size, but the corners of the rails differ as already described. In both cases the flanges are represented close up to the rail. It will be noticed, though, that in fig. 23 the distance h i, from the gauge line h a to the back of the flange, is  $1\frac{1}{8}$  in., whereas in fig. 25 it is  $1\frac{1}{16}$  in., or a difference of  $\frac{1}{16}$  in. As the same difference would exist in the flange at the opposite end of the axle, wheels which are gauged exactly alike, or the same pair of wheels, would have  $\frac{1}{16}$  in. more end-play or clearance on rails like the one shown in fig. 23 than they would have on those like fig. 25. This is due entirely to the shape of the corners of the rails.

In figs. 24 and 25 the rails are alike, but the throat of the







flange in fig. 25 has  $\frac{3}{8}$  in. radius, whereas the throat of the flange in fig. 25 has  $\frac{1}{4}$  in. radius. The flanges otherwise are alike. It will be seen that the distance  $h$  in fig. 24, is  $1\frac{1}{2}$  in., whereas, in fig. 25 it is  $1\frac{1}{4}$  in. Wheels like those in fig. 24 would therefore have  $\frac{1}{4}$  in. more end-play on the same rails, even though the flanges were placed exactly the same distance apart. This is due to the shape of the throat of the flange. It will, therefore, be seen that it is essential that there should be uniformity in the shapes of the corners of the rails and the throats of the flange, if the gauge of the wheels and rails in relation to each other should be at all exact.

The shape of the sides of the heads of the rails also has an important influence on the gauge. In figs. 26 and 27, the vertical dotted line  $DE$  represents the gauge-line. In fig. 26 the rail-head used in the Lehigh Valley Railroad is represented with its lower corner,  $B$ , conforming to this gauge-line,\* and the flange and tread down in fig. 5 is represented on the rail.

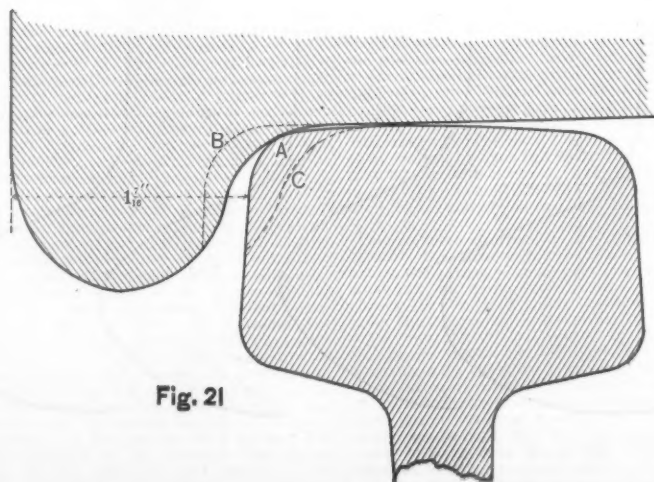
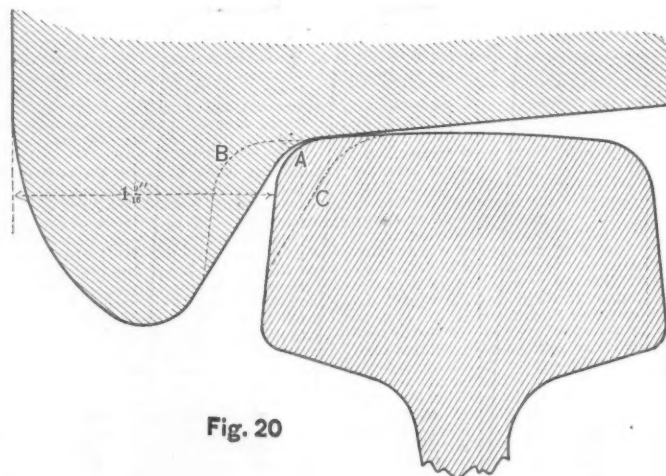
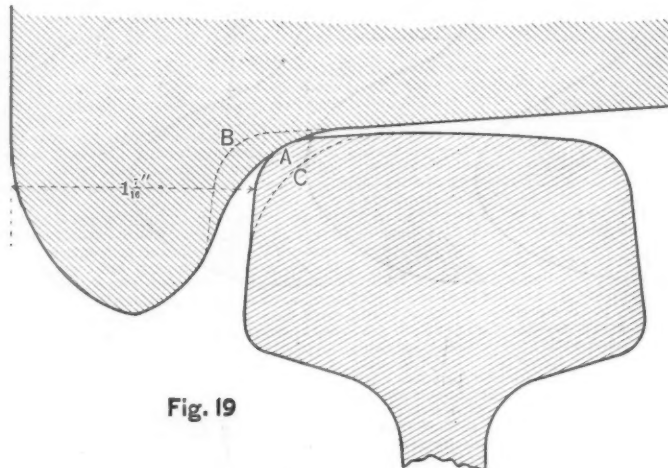
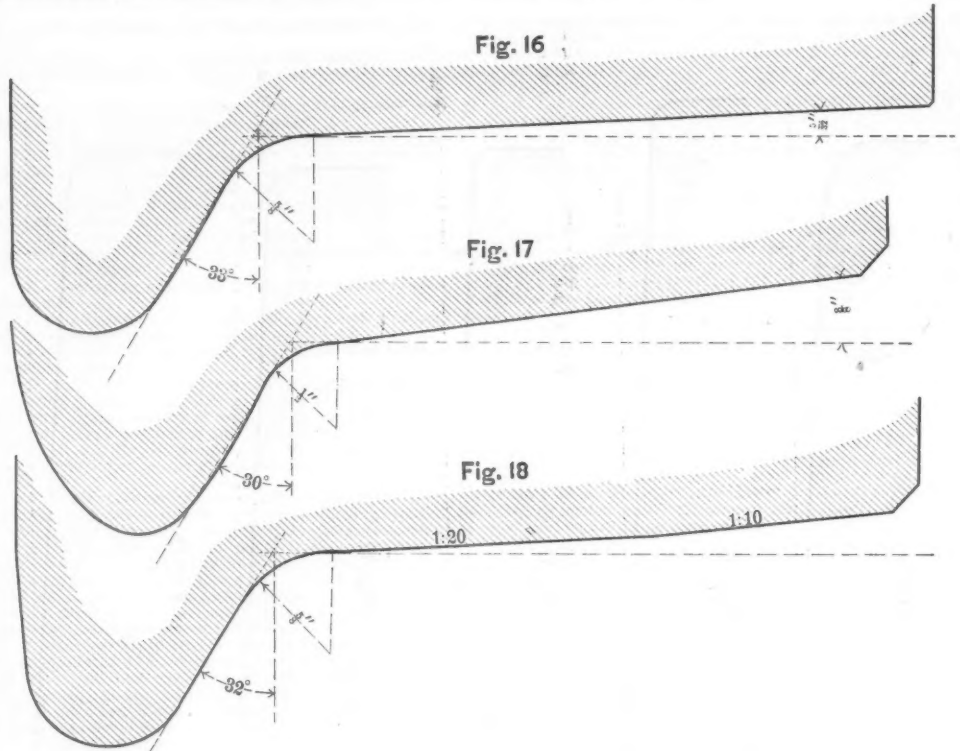
In fig. 27, the rail-head used on the New York, New Haven & Hartford Railroad is represented with its side  $AB$  on the gauge-line  $DE$ , and with the tread and flange shown in fig. 18 on top of the rail. Both flanges are shown against the side of the rail. From the extension upward of the line representing the back of the flange in fig. 27, it will be seen that the distance  $FG$  from the back of the flange, in fig. 26, is  $\frac{1}{4}$  in. farther out than the one in fig. 27. It will thus be seen that to have the same end-play flanges like the one shown in fig. 27, when running on rails like that represented must be gauged with their backs an inch closer together than flanges like that represented in fig. 26 must be when running on rails of the shape and gauged as indicated. Or, if the backs of flanges like fig. 26 were gauged 4 ft.  $5\frac{1}{2}$  in., the standard distance recommended by the Master Car-Builders' Association, they would have  $1\frac{1}{4}$  in. end-play or the rails shown in the same figure, whereas, if flanges like fig. 27 were gauged that distance, between their backs, they would have only  $\frac{1}{4}$  in. end-play on rails like those of the New Haven road. It follows then that the form of the heads of rails, the method of gauging them, and the proportions and forms of flanges are all important, and that standards should be adopted for each of them. It should be remembered too, that the rails represented are the actual standards at present in use on prominent railroads and that the flanges are the standard forms which two different wheelmakers are, or were quite recently, using. If the gauge of the rail shown in fig. 26 is measured from the point  $B$ , the point  $A$  will be about  $\frac{3}{8}$  in. from the gauge-line, and therefore if the gauge of such rails is measured from  $A$ , it will really be  $\frac{1}{8}$  in. wider than that of rails like the one shown in fig. 27. This principle applies to all rails with sloping sides, and for this reason it is important that those in charge of the permanent way of railroads should agree to gauge the rails from the same point.

By referring to figs. 1 to 18, it will be seen that the angles of the faces of the flanges with a vertical line vary all the way from  $12^\circ$  to  $32\frac{1}{2}^\circ$ . The question then arises, what is the best angle to use. The "rules governing the interchange of cars," adopted by this Association provide that roads may refuse to receive cars if any of the flanges of the wheels have "flat vertical surfaces extending over  $\frac{1}{4}$  in. from tread of wheel. In fig. 28, a flange is represented which has an angle of  $15^\circ$  with a vertical line. The black surface represents the metal in the throat of the flange, which, if worn away, will leave a "flat vertical surface extending over  $\frac{1}{4}$  in. from the tread of wheel." In fig. 29, a flange having an angle of  $30^\circ$  is shown and a black surface shows the same result as in fig. 28. A glance will show that more than twice as much metal must be worn out of the throat of a flange having an angle of  $30^\circ$  than from one having half that angle to produce a vertical surface  $\frac{1}{4}$  in. deep. It will, therefore, wear twice as long. It must be remembered that the metal represented by the black surface in a certain sense is *precious metal*. Without it cast-iron wheels are valueless, excepting as old metal, and when it is gone from steel tires they must be re-turned. If then, the endurance of a flange is increased with its angle, evidently it is desirable to make it as large as practicable. Of course, it is possible to make it so large as to incur the liability of rolling up on, "or mounting the rail," but no complaint of this kind, so far as known to the writer, has ever been made of any of the flanges represented in figs. 1 to 18. Considering too, that the flange shown by fig. 18 with an angle of  $32^\circ$  is the standard on all the German State railways, and is used with cars without trucks and very long wheel bases, and that one of the most prominent manufacturers of cast-iron wheels in this country uses an angle between  $29^\circ$  and  $30^\circ$ , it indicates that the latter angle is entirely safe.

A large angle also has the advantage of increasing the amount of metal in that part of the chill-mold that comes in contact and must absorb the heat from the flange and throat. It is therefore believed that it is less difficult to get a good chill in the throat of a wheel if the flange has a large angle than it is with one having a small angle. For these reasons an angle of  $30^\circ$  with a vertical line is proposed for a standard.

The depth of the flanges shown in figs. 1 to 18 vary from 1 in. to  $1\frac{1}{2}$  in. the majority being  $1\frac{1}{2}$  in. The standard German flange is  $1\frac{1}{2}$  in. deep. Very much the same practice in this particular prevails in British roads, although a great many flanges are used in British lines which are only 1 in. deep, and the standard for "wagon" tires on the London & Northwestern line is  $\frac{1}{2}$  in. deep. There does not seem to be any reason for changing the prevailing practice here of  $1\frac{1}{2}$  in., and the proposed form of flange is therefore made of that depth, measured from the tread next the flange, which makes the depth  $1\frac{1}{8}$  in. if measured from the cylindrical part of the tread.

The toe  $T$  of the flange, Fig. 29, is made slightly pointed. The reason given for that is that that form will cut through snow or ice more readily than one made more obtuse. Another reason is that a pointed flange is less likely to strike a frog or switch point. In order to avoid doing this the point or the toe of the flange should be kept as near the middle of the flange-way as possible. When the flange is up against the rail, or in the position represented, the centre line  $ST$  through the toe is  $\frac{1}{8}$  in. from the gauge line, whereas, when the back  $B$  of the flange is up against the guard-rail or frog the centre line  $ST$  would be only  $\frac{1}{16}$  in. from that side of the flange-way. It seems, therefore, as though the centre line  $ST$  should be closer to the gauge-line than it is represented. But the flange is subject to wear, and when reduced to the form indicated by the black surface the worn face  $F$  would be only  $\frac{1}{16}$  in. from the centre line. While the flange is wearing, however, the tread is also usually reduced, so that the face  $F$  is not usually worn so close to the centre line when its vertical surface is  $\frac{1}{4}$  in. deep, consequently the face  $F$  would rarely be brought closer to the centre line than the back  $B$ . The end to be arrived at is to keep the point of the toe  $T$  as far from the main rails and also from the guard rails as possible. It must be remembered that with the standard distance of 4 ft.  $5\frac{1}{2}$  in. between the backs of flanges, which has been adopted, and with  $\frac{1}{8}$  clearance or end-play between the flanges and rails



\* On the Lehigh Valley Railroad the gauge is measured from a point  $C$ , midway between  $A$  and  $B$ .



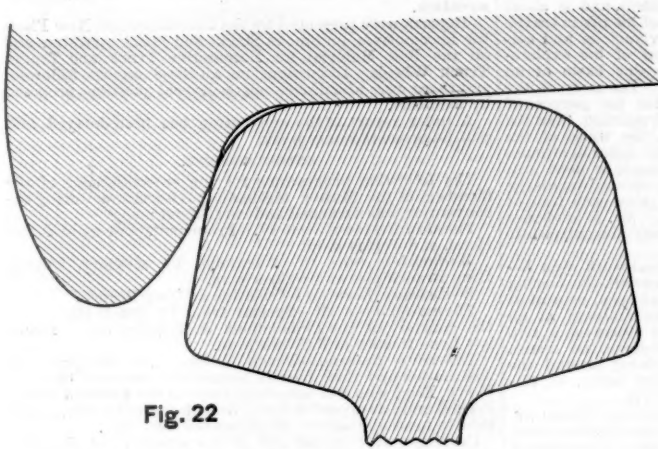


Fig. 22

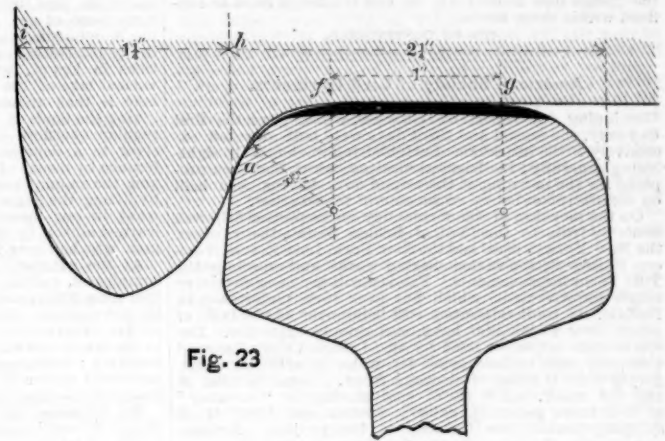


Fig. 23

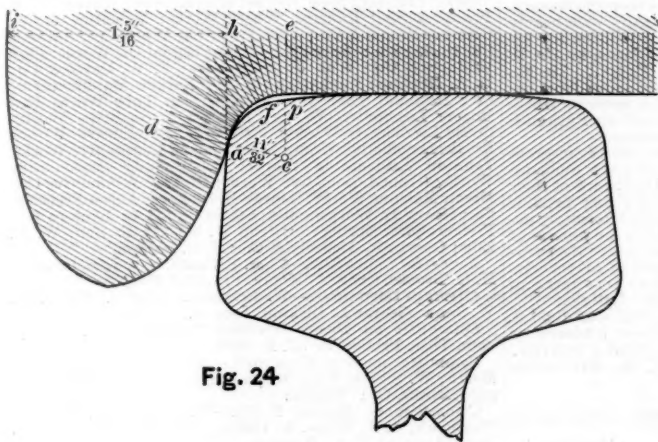


Fig. 24

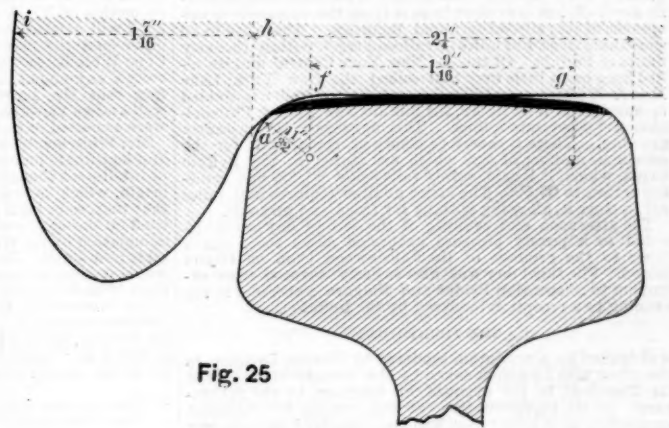


Fig. 25

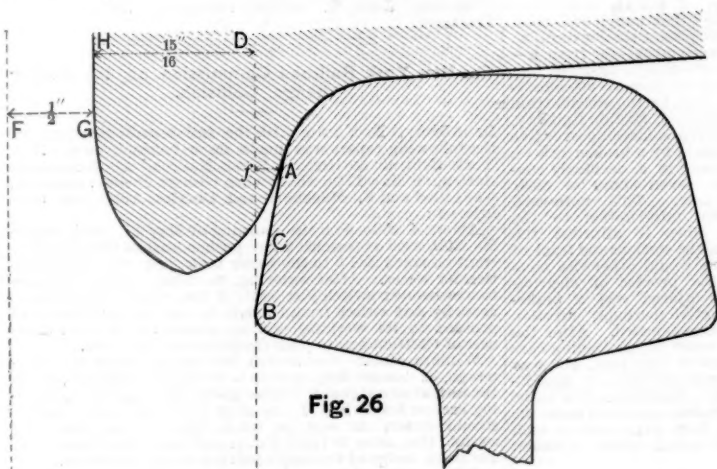


Fig. 26

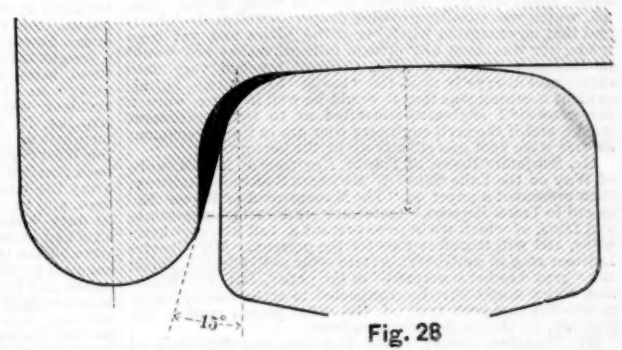


Fig. 28

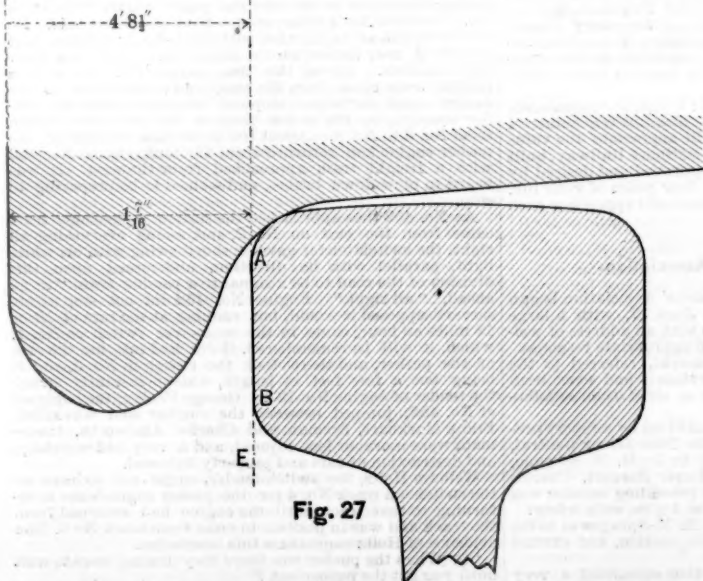


Fig. 27

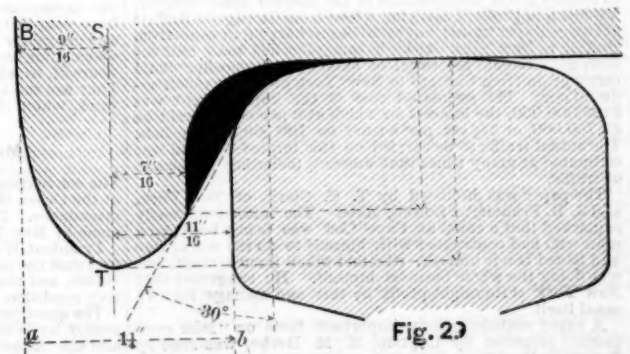


Fig. 29



on each side, the distance  $a b$ , from the back of the flange to the gauge line is only  $1\frac{1}{4}$  in. and the flange must be confined within those limits.

(TO BE CONTINUED.)

#### American Society of Civil Engineers.

Continuing our report of last week, which gave the first day only, the second and third days were both devoted exclusively to the inspection of neighboring works and to sight-seeing generally; the business meeting, which had been proposed for the morning of the second day, having been held on the afternoon before on account of the weather.

On the morning of the second day an inspection trip was made by train to the Central Bridge Works, the yards of the New York Central and the New York, Lake Erie & Western Railroads, the various harbor works, and especially the Tift Farm improvements. The latter is the most extensive single improvement which has ever been undertaken in Buffalo, its total estimated cost being over \$4,000,000, of which over \$1,000,000 have been already expended. The works were begun in 1882 by the Lehigh Valley Railroad Company, and include some  $4\frac{1}{2}$  miles of artificial canal, giving some 9 miles of dockage front. Some 15 miles of railroad track, 4,500 ft. of coal storing (or "stocking" as it is more generally called), trestles and 1,800 ft. of shipping pockets are included in the project. Perhaps one-quarter of the works are already completed, including an enormous coal-stocking trestle, where over 100,000 tons of coal are already heaped up. Extensive improvements of the lake shore are also necessary in connection with the works and are now in progress. A principal object of the improvement is to enable the shipment of coal by railroad to be carried on independently of the condition of water transportation. The coal trade of Buffalo has been and is growing very rapidly. This, indeed, is the case with its traffic generally, as is evident in part from the enormous development of its railroad terminal facilities. There are in all something over 400 miles of railroad track within the city limits of Buffalo. Of this the New York Central and its allied lines has a little over 200 miles; the New York, Lake Erie & Western over 160 miles, and the remainder is divided up among the West Shore, the Buffalo, New York & Philadelphia and other minor lines. This aggregate is constantly growing. There is therefore plenty of room even for the enormous number of cars which are stored in the Buffalo yards, which, it is said, rarely falls below 20,000 and sometimes rises to 60,000. The latter number requires 340 miles *net* to store it, allowing nothing for frogs and turnouts.

The afternoon and evening of the second day were devoted to a purely pleasure excursion down the Niagara River to the grounds of the Falconwood Club on Grand Island. The third day was also entirely devoted to an excursion to Suspension Bridge and Niagara Falls, and in the evening to a reception tendered by the Buffalo Club.

#### THE FOURTH DAY

was opened by a resolution tendered by Charles Latimer, to the effect that no action taken by the Society should bind its President, in the event of his selection by the government as its representative at the coming international conference on a prime meridian and standard time, to any particular meridian or hour for beginning the numeration for the day. Mr. Latimer's motives were evidently not wholly unconnected with the subject-matter of a pamphlet which he had distributed previously, bearing upon the divine origin of the great pyramid and its fitness for use as a standard for various purposes.

The resolution passed after some discussion. Mr. E. L. Corbelle, Chief Engineer of the New York, West Shore & Buffalo Railway, and formerly Captain Eads' Chief Assistant in the Mississippi River jetties, then gave the results of 10 years' experience on the jetties, showing that all predictions and hopes in favor of the plan adopted had been fulfilled to the letter, that there was now over 31 ft. of water in the channel, which was steadily growing deeper as well as straighter, and that no extension whatever of the jetties had yet been made, nor was there any present indication that any would be necessary hereafter. Mr. Corbelle touched very delicately and discreetly upon the "lesson" to be drawn, but his evident meaning was that it would be well if there were a few more civil engineers consulted as to the government works, and if the civil engineers who are in the government service were kept less effectively in the background.

Mr. Benjamin Reese, of Toledo, Engineer of Maintenance of Way on the Lake Shore & Michigan Southern Railway, then presented a paper on "The Management of Forces Engaged in Track Repairs," containing interesting suggestions and facts, of which we hope to present a full abstract hereafter, and will therefore pass for the present. Mr. Charles Latimer rose to controvert certain supposed reflections upon the "gray-headed trackman" in the paper, but the discussion which might have been expected to arise was curtailed, as was the case with most of the other papers read on the last day, by the limited time available.

Mr. Elnathan Sweet, State Engineer and Surveyor of New York state, then presented a paper on the "Radical Improvement of the Erie Canal." The paper stated that though nine-tenths of the transportation was done by canal 30 years ago but one-fifth is done now. The canal should be so enlarged that it would accommodate the largest vessel on the lakes and permit continuous transportation from Chicago to New York. It should be 18 ft. deep and 100 ft. wide and its locks should be 450 ft. long and 50 ft. wide. The Mohawk River should be made a canal. The canals ought to remain under the dominion of the Empire State forever. Vessels find profit in carrying wheat from Chicago to Buffalo at two cents per bushel, but canal boats charge four cents from Buffalo to New York—twice as much for less than half the distance. Should the canal be enlarged a propeller could carry grain from Chicago to New York at a very much reduced cost. The estimated cost of the improvement was \$125,000,000, the interest on which at 3 per cent. would be \$3,750,000, or 3½ cts. per bushel on 100,000,000 bushels. The actual traffic to be carried on the improved canal was estimated at many times that amount, including all classes of traffic.

The paper was discussed by T. C. Clark, of New York, and J. B. Francis, of Lowell, Mass. The latter felicitously remarked that a canal at Cape Cod was being built by a man who had contracted with himself to do the work, who had issued bonds himself, who had taken them himself, and was doing the whole business himself. He suggested that New York state might profit by this and manage its own canal itself.

A paper containing some important facts on "lake commerce" prepared by Captain M. M. Drake, was read by Secretary Bogart.

Discussions on both papers followed, and were participated in by William J. McAlpine, J. H. Harlow, of Pittsburgh; Nathaniel M. Edwards, Appleton, Wis. and E. P. North, of New York.

The remainder of the morning session was given up purely to amusement, by interrupting the regular course of business to listen to an address by F. Cope Whitehouse, a member of the New York Geographical Society, who is not con-

nected with the Engineers' Society. Mr. Whitehouse is the son of the late Bishop Whitehouse, of Illinois, and is about forty years of age. He has passed much of his life in traveling in out-of-the-way places and gave a vivacious and certainly interesting extemporaneous account of his explorations in Egypt, where he explored the dry basin of an ancient lake of the time of Herodotus. The story of the lake is that an ancient Egyptian king, for the purpose of giving the lands of his subjects better irrigation than the regular overflow of the Nile, admitted the water of the river to a depression of the country 450 miles in circumference by means of a canal. The water made a dead sea, and the amount lost by evaporation was replaced regularly by lifting the dams in the canal at an expense each time of what in our money would be \$600,000. Mr. Whitehouse learned all this by careful inquiry. He was the only white man who had ever visited those parts.

At the afternoon session very little real work was accomplished, and the attendance was quite small, considering that some 226 members in all were, or had been, present at the convention. Many of the members were absent at an all-day excursion to Chatauqua, and many others on a trip to the water-works. Many others again were, no doubt, studying "landscape engineering" by driving around the parks and streets of the city, some of which latter, at this season of the year, are exceedingly attractive.

Mr. Clemens Herschel presented a paper on "Steam vs. Water Power," controverting certain statements in a paper by Mr. Charles E. Emery as not doing justice to the economy of water power. Mr. J. J. R. Croes, of New York, read a valuable statistical paper on "Water-Rates," giving those which prevail throughout the continent. Captain Michael's paper on the "Heavy Gun Question" was again discussed; various announcements were made; a very handsome memorial souvenir of the occasion, prepared specially for presentation to the Society, and giving numerous and beautiful views around Buffalo, was distributed, and then the Society, on motion of Mr. J. J. R. Croes, and evidently with hearty good will, settled itself back with a laugh to listen for another (and the closing) hour to a second address by Mr. E. Cope Whitehouse on "The Pyramids of Egypt." The Society's enjoyment of the matter evidently arose from the fact that Mr. Latimer, of Cleveland, was present, whose well-known views as to the inspired origin of the Pyramids were expected to provoke an amusing discussion.

Mr. Whitehouse's address, however, was certainly of great and legitimate interest to any engineer, and gave evidence of intelligent thought and investigation. His theory of their origin, which he supported by many convincing facts, is that they were built from needles of rock which formerly existed on the spot, and which had been left in the process of denudation by the river on the precise spots where the pyramids now stand. To go into further account of his theories would occupy too much space, but they were convincing to most of those present, including, in part, Mr. Latimer.

The convention then, at 6 p. m., adjourned *sine die*. A reception to citizens of Buffalo, which had been tendered by the Society, was held in the evening as a closing festivity, at which an "elegant banquet" was served, the clever menu for which opened with

"COCKTAILS."

"What was once to me mere matter of the fancy, now has grown  
The vast necessity of heart and life."

—Tennyson.

and closed with

"Punch"—American Society of Civil Engineers.

"One sip of this

Will bathe the drooping spirits in delight  
Beyond the bliss of dreams. Be wise and taste."

—Comus.

It is to be feared that the citizens of Buffalo will derive the impression from the proceedings that punch and cocktails more than business were the purpose of the convention, not that there was any undue conviviality—far from it—but there certainly was no undue attention to business.

The following (Saturday) morning the Eastern attendants to the convention returned to New York by the special train tendered by the New York, West Shore & Buffalo Railway, having the misfortune to be delayed something over five hours, however, by a bad wreck caused by a broken axle on a freight train, which piled up 18 cars in a decidedly confused heap, which it took over seven hours to clear away so that trains could pass. This untoward accident was not so dismal an interruption to the trip as it might have been, since it afforded the members an opportunity to examine the stations and track of the West Shore with more care than would otherwise have been possible, and also to watch the process of clearing away the wreck. The only person injured was a brakeman, and he only through an instinctive (perhaps) devotion to duty which deserves to be commemorated. After the axle had broken and while one or more of the leading cars were off the track, he set the brakes of nine cars, and was engaged in setting brakes on the tenth car when it was derailed and he was thrown over into the ditch, it is to be hoped without more serious injuries than appeared upon the surface. It is the character which finds expression in such faithful discharge of duty as this which make a nation great and civilization possible.

During the trip home the following dispatch from Mr. E. F. Winslow, President of the North River Construction Company, to Mr. Walter Katté, Chief Engineer, was received and passed around by orders of Secretary Bogart among the passengers; and we reproduce it as doing no more than justice to the admirable character of the engineering work upon the line which it is pleasant to see recognized and appreciated:

"WALTER KATTÉ, Chief Engineer: I wish to congratulate the excursionists and wish them a pleasant trip home. I hope your fellow civil engineers will appreciate the value and character of the work on the West Shore Railway, built under your control and upon plans approved and desired by yourself, to which you have given four years of your life. They are the kind of men to understand and appreciate such work, which shows for itself."

#### Master Mechanics' Association.

The convention of the Master Mechanics' Association began at the Ocean Hotel at Long Branch, June 17, with a large attendance. The proceedings began with an address of welcome by Rev. Dr. Tompkins, with an appropriate response.

President Wells, in his opening remarks, referred to the fact that the membership was larger than it had ever been before, and that the finances were in a more than satisfactory condition.

The question of steel tires was brought up by a report presented by William Woodcock, of the New Jersey Central, and the discussion was participated in by H. N. Sprague, A. G. Eastman, J. H. Flynn, J. Davis Barnett, Charles Blackwell, and R. C. Blackall. The prevailing opinion was that the tires might be worn as thin as  $1\frac{1}{4}$  in. with safety.

A second discussion was started by H. N. Sprague as to the best method of pressing steel tires into position, and excited much diversity of sentiment.

The Committee on Boiler Construction submitted a very interesting report, discussion on which was postponed.

On the second day the time was partly occupied by a long

discussion on the report of the committee on Boiler Construction.

Reports were presented by the Committees on New Plans for Locomotives, on Smoke Stacks and Spark Arresters and on the Best Material for Locomotive Truck and Tender Truck Wheels. Discussions on all these reports followed, and there were also discussions on several questions proposed by members.

A fuller report of the convention has been delayed, and will be presented next week.

#### ENTERTAINMENT.

The following programme for the entertainment of the members of the Master Mechanics' Association during the convention was arranged and carried out:

Tuesday Evening, June 17.—Promenade concert at Ocean Hotel, at 8 o'clock p. m.

Wednesday, June 18.—Excursion by steamer, leaving Long Branch pier at 1 o'clock p. m.

Wednesday Evening.—Collation at Long Branch.

Thursday, June 19.—Special train to Beach Haven (by the courtesy of the Philadelphia & Reading Co.). Trains left Long Branch at 3 o'clock p. m.

Thursday Evening.—Beach Haven. At this place the Association and their friends became the guests of Chas. T. Parry, Esq., who will entertain them at the Baldwin Hotel. Special train returned to Long Branch the next morning in time to meet all trains to all points the same day.

Carriages were at the call of the members of the Convention and their friends at Ocean Hotel, from 10 o'clock Tuesday morning 17th, until Thursday noon, 19th June.

The committees having the entertainments in charge are as follows:

Reception Committee.—Hussey, Howe & Co.; Otis Iron & Steel Co.; Manning, Maxwell & Moore; H. A. Rogers; L. G. Tillotson & Co.; Murphy & Co.; Detroit Steel & Spring Works; Standard Steel Works; Midvale Steel Works; Thos. Prosser & Son; Ramapo Wheel Works; Valentine & Co.; Clarence Brooks & Co.; Allen Paper Car Wheel Co.; National Car Spring Co.; Galena Oil Works; Signal Oil Works; Park Brothers & Co.; Wm. Jessup & Sons; F. W. Devos & Co.; D. A. Hopkins; Manhattan Oil Co.; Nathan Manufacturing Co.; National Tube Works; American Tube Works Co.; Rogers Locomotive Works; Baldwin Locomotive Works; Cooke Locomotive Works; Pittsburgh Locomotive Works; Brooks Locomotive Works; Rhode Island Locomotive Works; Taunton Locomotive Works; Schenectady Locomotive Works; Grant Locomotive Works; Hinkley Locomotive Co.; Mason Machine Works; George L. Dickson; Aaron French & Co.; Henry R. Worthington; Steam Gauge & Lantern Co.; French Spiral Spring Co.; John W. Masury & Son; W. R. Ellis; George R. Menely & Co.; H. G. Ashton.

Executive Committee.—Chas. T. Parry, Gen. E. S. Greeley, H. G. Brooks, Chas. A. Moore, Franklin Murphy.

Carriage Committee.—W. Brigham, John S. Silver, W. W. Snow, George L. Dickson, John H. Harris.

Committee on Music.—William Burnham, N. E. Chapman, Thos. Prosser, Jr., J. K. Bole.

Committee on Boat Excursion.—M. L. Hinman, George Morris, W. Sibley, Fred. Rogers; Henry C. Valentine, Clarence Brooks, C. F. Choate.

Committee on Special Train.—W. H. Bailey, William Woodcock, A. A. Dame, A. Pitkin, C. T. Ham, H. A. Little, James Lancy, W. F. Wagner.

Committee on Beach Haven.—Charles T. Parry, John S. Cooke, C. A. Otis, Chas. G. Ellis, R. S. Hughes, L. G. Tillotson, Chas. Miller, A. G. Darwin, D. A. Hightman, Wm. H. Fenner, Max Nathan, A. De Lano, W. W. Evans, Wm. Mason, Jr., P. I. Perrin, J. Seaver Page.

The general officers of the Committee are: C. Roby, Chairman; John H. Belcher, Secretary; William Tothie, Treasurer.

#### The New York Railroad Commission on the Chittenango Collision.

In Albany, N. Y., June 10, the full board being present, the following report was made on a collision on the New York Central & Hudson River Railroad at Chittenango station, on May 17th, 1884, when George Penley, engineer, was killed and F. Markhart and Charles Ainsworth were injured:

About 4 o'clock on the morning of May 17, 1884, engine No. 209, used as freight train pusher east of Chittenango, went on track No. 3 to the water tank just west of the station for water. After watering, its usual course was to go to a cross-over switch just east of the station, and then to cross by said switch from track 3 to track 4, and thence to proceed to its working position about two or three miles east of Chittenango to push freight trains up grade.

William Holtz, the switch and signal tender at Chittenango, as was his duty, put up a red light upon the pole at the station as a signal to trains going west on No. 3, or going east on track No. 4, to stop until the pusher engine should water, run east on track No. 3 to the cross-over switch, then cross to track No. 4, and thence start east upon the track designed for trains moving in that direction.

After setting his red danger light at the station Holtz went to the cross-over switch in order to there do the switch-setting necessary to transfer the pusher engine from track No. 3 to track No. 4 on her return from the water tank. He set the switch at its junction with track No. 4; he then went and stood near the switch on track No. 3 with his white light lantern. About this time engine No. 131 with a freight train came from the east, and in obedience to the danger signal on the pole stopped, the engine with the tender standing on the switch point of the cross-over switch from No. 3 to No. 4. About the same time and before the pusher engine had returned from the tank, engine No. 452 with a freight train approached from the west. It was heard to blow down brakes, and seemed to be preparing to stop.

As No. 452 thus approached the station a passenger train came from the east on No. 2, and, seeing everything all right, the switch-tender gave a short swing with his white light, parallel with its direction, understood upon this division of the road to be a signal to a passing train "to go ahead," "all right." Engine No. 452 did not stop as observers supposed it would, but running at the rate of 10 or 12 miles an hour came to the cross-over switch on No. 4, which, it will be remembered, Holtz had set for the use of the pusher, and there took the switch to No. 3, and it being but a few feet in length, almost instantly struck the tender of engine No. 131. George Penley, the engineer of No. 452, jumped between the engines and was killed, Frank Markhart, fireman, and Charles Ainsworth, brakeman, were more or less injured, and a very bad wreckage and destruction of cars and property followed.

William Holtz, the switch-tender, ought not to have set the switch on track No. 4 for the pusher engine's use in returning to that track until the engine had returned from the tank and was in position to cross from track No. 3. The evidence of Holtz emphasizes this conclusion.

"Q. When the pusher was there they (trains), were to wait until you got the pusher out?"

"A. I suppose so, sometimes the pusher will wait and let him (the train) go ahead, and the pusher follow him; some-



times when they stop down below the pusher comes ahead of them."

"Q. Was that your usual custom?"

"A. That is the way we done it; sometimes when the pusher goes away to the water-house and a train is just coming that way they let him go ahead."

"Q. What signal do you give them to go ahead?"

"A. I swing my lamp over my head until I see them answer me and go."

Since custom sometimes permitted the train to come ahead of the pusher from the west, certainly Holtz ought not to have set the switch as we have stated until the pusher was in position ready for it. The blame, however, is largely removed from him by the fact that he gave no signal to the train to come ahead, and he had a right to suppose that the red light on the pole at the station would hold the train, at least until he should give the signal to come ahead.

The engineer of No. 131 bound west cannot be held responsible for the accident. He overran the switch on track No. 3, and would have been obliged to back his train in order to let the pusher out, but still substantially the same collision would have occurred had he stopped anywhere within a short distance east of the switch point.

George Penley, the engineer of No. 452, who was killed, blew down brakes, and then seems to have let them off and to have come ahead. The red light on the pole told him to stop; seeing the pusher at the tank he probably watched for the switchman's signal to come ahead of the pusher, as was sometimes done under the custom existing. When the switchman gave the short swing of his white light to the passenger train, as hereinbefore stated, it would seem as though Penley mistook it for the swing of the lantern over the head and therefore came on and followed the misplaced switch to the collision.

The Board does not find very much in the circumstances to warrant it in severely blaming the employees concerned. So far as they were concerned they seem to have been attentively trying to do their duties under the printed rules, and under customs permitted and having the force of rules upon this division and to have mistaken signals used.

The real responsibility of the accident belongs to the management of the road.

Prior to May, 1883, track No. 3 was used for east-bound freight-trains, and track No. 4 for those bound west. In accordance with good and safe construction and to prevent just such accidents as this, all switches between the tracks were "trailing" so that trains ran out of the heel of the switch instead of "facing points." Trains could not get from one track to the other while going ahead; to do it they had to back up. A misplaced switch might derail a train, but it could not be thereby run on to the other track and into the face of trains approaching thereon.

In May, 1883, the General Superintendent, with the approval of his superiors, changed the direction of the trains on these tracks without changing the cross-over tracks or switches.

In its first annual report, P. 352, the Board used the following language as to this change upon the New York Central.

"It seems to the Board, however, that the change of direction in the movement of freight trains on the freight tracks of the main line is attended with great danger, until the switches are changed. When, as heretofore, on track 3 freight trains ran east, and on track 4 west, lately the directions have been reversed. The switches between the tracks before the change were 'trailing,' that is to say, trains ran from the heel of the switch rail toward the point, whereas now they run into the eye of switches, or 'facing points,' as it is termed. The change of direction was made to save the life of the rail, but the Board thinks a corresponding change in the switches should be made at the earliest moment practicable to avoid the danger of a collision by freight trains getting on the wrong track. Running trains 'facing points' is regarded in England and elsewhere as a dangerous practice."

This serious accident seems to be the result of running trains "facing points." This was not only done from May, 1883, until January, 1884, but since that time has been continued to some extent in the face of the protest made and warning given by this Board, as stated. The General Superintendent insists that the change in the direction of trains was not made to "save the life of the rail," as stated by the Board. The Board made the statement upon authority of those prominent on the road. The General Superintendent may be conceded to be right; he states good reasons for changing the direction of the trains outside of the economic one stated by the Board. Those reasons are these: Two accidents nearly occurred by reason of the passenger trains on track No. 2 and the freight trains on track No. 3 running in opposite directions, because a brakeman, in case of an accident to a train on either track, did not have time to flag in both directions. In order to remedy this, and to enable a single brakeman to protect the rear of trains on both tracks the change was made. Convenience in cleaning snow is also urged as a reason, but there is not much in this as it appears to the Board. For the first reason stated, the change in direction may, without doubt, be claimed to be a wise one in the interest of safety. It will be observed that it is not the change in the direction of trains that it is condemned by the Board in its annual report, but that such change was not sooner and more vigorously followed by a corresponding change in all cross-over switch tracks and switches. The General Superintendent testifies that the order to change the direction of the trains was accompanied by an order to change these cross-over tracks as fast as possible, so as to make their switches trailing. He also estimates that there were between 300 and 400 of these cross-over tracks between Albany and Buffalo; that \$8,000 to \$10,000 expended in the employment of additional track hands and in providing necessary material would have accomplished the work during the summer of 1883. No permission to make this expenditure was given, but the labor was to be done by the regular track force in addition to its other duties. The track force did not have time to do this work in addition to the regular work, except in so slow a way as to leave many unchanged at the end of a year from the giving of the order; and new material was not furnished at all at the place of this accident, and at some other places, prior to the date of this occurrence. Thus it will be seen how a false and excessive economy in the management forced the superintendents and employees to run trains rapidly, and in quick succession, in the face of unnecessary danger menacing them and the public at many places on the line. It will not do in such a case and is not right, though a common practice, to attempt to load the entire responsibility upon employees. Railroad service requires, under all circumstances, that extreme vigilance and faithful care which is generally found among railroad employees. An employee should be held to his duty, but he should not be held solely accountable if an accident occurs at a place where the road, to save expense, insists on permitting the long-continued use of an unusual and unnecessarily dangerous construction, which aids in bringing about the casualty, and which makes safety depend upon extreme human vigilance.

The Board cannot in this case do otherwise than severely condemn the New York Central & Hudson River Railroad and its management for not having accompanied, or at least

having vigorously followed the change in the direction of trains on tracks Nos. 3 and 4 with a corresponding change in all of its cross-over tracks and switches between these tracks. Had the road so done this accident could not have occurred from this misplaced switch. By the Board,

WILLIAM C. HUDSON, Secretary.

#### A Bureau of Accidents.

The Chicago, St. Louis & Pittsburgh Co., under direction of Manager McCrea, has established a Bureau of Accidents. The duty of this board will be to keep a record of every accident taking place on the road. All testimony of trainmen or eye-witnesses other than trainmen will be taken and filed away with the report of the accidents. This is done with two objects, one to preserve a record for the information of officers of the company, and the other to protect the interests of the company, as frequently suits are brought for damages a considerable time after an accident occurs, and in such cases the records of this bureau will be valuable as evidence if admitted by the court, or at any rate as indicating where testimony can be secured.

#### ANNUAL REPORTS.

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#### Toledo, Ann Arbor & Grand Trunk.

This company owns a line from Toledo, O., to South Lyons, Mich., 61 miles. Its report is for the year ending Dec. 31 last.

The general account is as follows:

Stock. \$1,900,000.00	
Bonded debt. 1,260,000.00	
Due J. M. Ashlev, President, for rolling stock, etc. 150,800.57	
Accounts and balances payable. 73,929.85	
Income account, surplus. 21,908.45	
Total. \$3,406,636.87	
Road and equipment. \$3,318,298.33	
Fuel and supplies. 13,694.97	
Accounts and balances receivable. 48,521.33	
Cash. 26,122.24	
Total. \$3,406,636.87	

The funded debt consists of one issue, first mortgage, 6 per cent., 40-year bonds. There was no change in stock or bonds during the year.

The traffic for the year was as follows:

	1883.	1882.	Inc. or Dec.	P. c.
Train miles, passenger. 73,417	77,692	D.	2,275	2.9
freight. 75,888	59,655	I.	16,233	27.1
Passengers carried. 57,480	57,526	D.	36	0.1
Passenger-miles. 1,553,902	1,213,073	I.	340,829	28.1
Tons freight carried. 218,539	159,234	I.	62,305	39.9
Ton-miles. 9,634,937	7,361,227	I.	2,273,710	30.9

As train-load:

	1883.	1882.	Inc. or Dec.	P. c.
Passengers No. 21	16	I.	5	31.3
Freight, tons. 127	123	I.	4	3.3

The increase in tonnage was entirely in local freights, chiefly in coal, iron and flour. The coal carried last year was 121,298 tons, an increase of 52,944 tons, or 77.5 per cent. Through business last year furnished 53.6 per cent. of the ton-miles, against 70.8 per cent. in 1882.

The earnings for the year were as follows:

	1883.	1882.	Increase.	P. c.
Freight.....	\$117,865	\$96,667	\$21,198	21.9
Passengers.....	37,492	35,344	2,148	6.4
Mail and express.....	5,257	4,603	655	14.2
Rents, etc.....	49,453	41,719	7,734	18.4
Total.....	\$210,067	\$178,232	\$31,835	17.9
Expenses.....	120,696	99,150	21,547	21.7

Net earnings. \$89,371

Gross earnings per mile. 3,444

Net. 1,465

Per cent. of expenses. 57.46

The increase in expenses was chiefly in maintenance of way, and was due largely to repairs of damage done by floods.

The income account is as follows:

Net earnings for the year. \$89,370.79	
Interest on first mortgage bonds. 75,000.00	
Balance, surplus for the year. \$13,770.79	
Balance from 1882. 8,135.08	
Balance, Jan. 1, 1884. \$21,908.33	

The report says that the operating expenses were increased by the damage caused by the February floods, including the total destruction of the trestle work along the Maumee River, and the consequent suspension of all business. They were also increased by the long and unusually hard winter. The low ratio of expenses is owing in part to the large proportion of earnings received from other companies who use portions of this road with their own motive power. In repairing the road after the flood in Toledo the road-bed along the bank of the river was raised and otherwise improved by the use of stone to protect the earth-work from washing.

The result was that this part of the road entirely escaped damage from the flood of February, 1884. Repairs and renewals of the track generally have been liberally made. Five miles of track between Toledo and Alexis have been relaid with 67-lb. steel rails, and steel rails will this year be laid from Alexis to Dundee, 17 miles. It is the intention of the board to put the road in as good condition as possible.

Property was purchased in Toledo with a view of making additions to the transfer grounds at the junction of the Wheeling & Lake Erie road and securing a larger dock frontage on the Maumee River and also for building an engine-house and machine shops. The improvement of this property will be commenced during the current year. The terminal facilities at Toledo will probably be improved during this year, also by the building of a grain elevator of 500,000 bushels capacity by an independent company. The early completion of the Toledo Belt road will give this road new connections of great value and will enable it to exchange business with all the lines entering that city.

The Grand Trunk extension to South Lyons was completed in the fall, but very little business was exchanged with this road last year. The Pontiac, Oxford & Port Austin road has been completed and a considerable traffic is expected from this line. A lease of the use of the tracks and stations of this road between Toledo and Dundee, 22 miles, to the Michigan & Ohio Co. has been completed on terms advantageous to the company. Several new lines are projected in Michigan which will make connection with this road, and it is thought that two of them will be partly constructed during the present year.

The building of the Toledo, Ann Arbor & North Michigan road from South Lyons is being pushed, and the division between Owosso and St. Louis is nearly finished. This road will extend into the lumber regions of Northern Michigan, and will, when completed, control a large lumber business. Terms of consolidation of this company and the Toledo, Ann Arbor & North Michigan road have been agreed upon, but not formally approved. It has been determined to postpone the settlement of the question until the North Michigan road is finished to St. Louis, after which the proposition for the consolidation will be submitted to the vote of the stockholders.

#### Little Rock & Fort Smith.

This company owns a line from Little Rock, Ark., to Fort Smith, 165 miles, with 3 miles of branches, making 168 miles in all. The report is for the year ending December 31.

The equipment consists of 13 locomotives; 10 passenger, 1 combination and 3 baggage cars; 158 box, 20 stock, 173 flat and 6 caboose cars; 1 tool car. One locomotive, one stock and two flat cars were added last year.

The balance sheet is as follows, condensed:

Stock (amount authorized, \$5,000,000) issued. \$4,505,208.58	
Funded debt. 2,454,167.56	
Notes issued and to be issued for coupons. 637,332.50	
Notes, accounts and balances payable. 41,309.32	
Income account, balance. 723,799.73	
Total. \$8,362,017.70	
Cost of property. \$7,013,479.10	
Land and notes. 532,835.42	
Arkansas state aid bonds. 119,011.82	
Little Rock Junction road. 38,200.77	
Operating Dept. assets, less liabilities. 10,451.51	
Accounts and balances. 31,673.61	
Cash. 16,347.56	
Total. \$8,362,017.70	

The funded debt consists of \$2,453,500 first mortgage bonds and \$667.56 scrip, a reduction during the year of \$23,000 bonds and \$19.45 scrip. The company holds \$168,000 bonds in the treasury. The issue of bonds was \$3,000,000, of which \$378,500 had been canceled from land sales up to the close of the year.

The earnings for the year were as below:

	1884.	1883.	Inc. or Dec.	P. c.
Freight. \$308,380	\$232,712	D.	\$75,668	4.7
Passage. 194,342	174,904	I.	19,438	11.1
Mail, express, etc. 70,770	40,458	I.	30,312	74.8
Total. \$573,492	\$448,074	I.	\$125,418	6.4
Expenses. 335,291	301,940	I.	33,351	11.4
Net earnings. \$238,201	\$246,134	I.	\$7,933	0.4
Gross earn. per mile. 3,414	3,200	I.	214	6.4
Net. 1,418	1,412	D.	6	0.4
Per cent. of exps. 58.45	56.01	I.	2.44	...

The increase in expenses was nearly equal to that in gross earnings, leaving only a trifling gain in net earnings.

The income account is as follows:

Net earnings for the year. \$238,201.34	
Land sales and interest. 136,748.09	
Total. \$374,949.43	
Interest on bonds and scrip. \$208,138.50	
Interest, insurance, etc. 12,275.83	
Land Department, etc. 55,708.47	
Legal expenses. 30,974.90	
Balance. \$67,941.43	
Balance, Jan. 1, 1883. 656,058.30	
Balance of income account, Jan. 1, 1884. \$723,999.73	

The Land Department reports sales of 40,676 acres for \$143,688, an average of \$3.53 per acre. The number of purchasers was 692, the average sale being 58.78 acres to each buyer. At the close of the year the company held 663,488 acres unsold land and land notes the principal of which amounted to \$532,835. The total sales to the close of 1883 were 355,118 acres.

The report says: "During the year there has been organized, under the laws of Arkansas, the Little Rock Junction Railway, for the purpose of building a bridge and a railroad across the Arkansas River, to connect our road with the Little Rock, Mississippi River & Texas Railway. Contracts have been made for the building of the same, and work is already commenced. It is expected the bridge will be completed by September of this year."

"Contracts have been made with the two roads for the exclusive use of the bridge for the term of 30 years. The interests of the two roads are so intimately related that it has been deemed wise to put them under one general management, so far as the operating of the same is concerned, thereby securing not only greater economy but the ability to control a larger business. Accordingly Mr. Henry Wood, formerly of the Denver & Rio Grande road, was appointed last October as General Manager, to conduct the operating departments of both roads, with his headquarters at Little Rock."

"Except in this particular the two companies are kept entirely distinct in every respect, each company keeping their separate accounts. We have reason to believe the change will result as was anticipated. The condition of the property has been kept good, but it will be our aim to improve it, by a gradual introduction of steel rails and iron bridges, as rapidly as renewals shall be required. The financial condition of the company, as given by the Treasurer in his report, shows a small floating debt; this has since been paid."





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## EDITORIAL ANNOUNCEMENTS.

**Passes.**—All persons connected with this paper are forbidden to ask for passes under any circumstances, and we will be thankful to have any act of the kind reported to this office.

**Contributions.**—Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to ALL DEPARTMENTS of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.

**Advertisements.**—We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns OUR OWN opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.

## THE CIVIL ENGINEERS' CONVENTION.

The conventions of the American Society of Civil Engineers are far less business-like than those of the various technical and other railroad organizations, and even in intention are far less devoted to business. But it is not fairly to be compared with those organizations. They have no meetings but their annual conventions, and do substantially all their work as associations at those conventions. The Society of Civil Engineers has a great many meetings through the year, at which papers are read and discussed, publishes papers monthly in its *Transactions*, and does much of its business at these meetings, so that its annual convention is needed for social purposes probably more than for anything else. The Society is not a homogeneous body devoted to a single specialty, in the details of which all are alike interested. On the contrary, civil engineering now covers so broad a field that the subject is rare which is sufficiently common to all its branches to make a paper on it of interest to more than a minority of its members. But all the more, if technical papers are to be read at all, there is need of some organization and some classification of its proceedings, so that those who are interested in particular branches may attend the reading of papers and discussions on that branch without being obliged to sit through the readings of a variety of papers in which they have little if any interest. At the late convention such organization was conspicuous by its absence, and whether for that or some other reason it is hardly too harsh to say that the technical side of the convention was a mere farce; so much so that it was made the subject of comment in the local press and among the citizens of Buffalo.

This is not as it should be and must tend to injure the prestige of the Society. To be sure, the real benefit of such conventions is by no means confined to its public proceedings, nor are they the leading motive which induces members to attend. The pleasure of meeting once a year men of kindred pursuits from all parts of the country, who otherwise would not often if ever come together, is a great one and beyond doubt of great professional profit. The mere getting away from business for what will be for many the only vacation of the year is in itself no small advantage and goes far to justify the holding of the conventions. But nevertheless the purely technical purposes of the convention should not be so wholly lost sight of, nor need they be. Especially now that the conventions have grown so large (226 members having been in attendance, in addition to nearly 100 ladies and guests) there should be no difficulty in gathering together an interested audience of 40 or 50 at least for the reading of papers on any given branch of engineering. As a matter of fact at the late convention but few papers were actually read in full and intelligently discussed. The first morning's proceedings were fully attended. The afternoon meeting, which included the business meeting, was merely a substitute for an excursion to various works near the city which had

to be postponed on account of rain. At this improvised session the only business meeting was held. Therefore the one meeting in which all the members were jointly interested, and which afforded the only opportunity for non-resident members to take part in discussions of the policy and management of the Society, was held without previous notice and with a slim attendance. Considering also that the business meeting was only called to order at 5:30 p. m. it is not surprising that little was done.

The two following days were entirely given up to sight-seeing, one day at Suspension Bridge and Niagara Falls, half a day on an excursion down the river, and half a day to the postponed trip around the city. The closing day was given up to a morning and afternoon session for the reading of papers, but it is not too much to say that discussion and even the full reading of papers was largely choked off by something very like the "previous question" in Congress. At least one-fourth of both the morning and afternoon sessions were given up to extemporaneous addresses by Mr. R. Cope Whitehouse, an American traveler, with a fluent and interesting gift of talking, and with something to say which under other circumstances it might have been wise and proper to listen to, but which was not included in the programme and which it would hardly have seemed expedient to interrupt the regular proceedings with, had much importance been attached to the latter.

The remedy for these difficulties would seem to be two. Either the Society should be divided into sections, so that the reading of papers on two or more branches of engineering might be proceeding at the same time to those who were specially interested in each branch, or, what would perhaps answer the same purpose more effectually, the proceedings themselves should be divided into sections, so that each of the various sessions might be devoted more particularly to certain special departments. This would enable those who are simply bored by the reading of papers on subjects in which they have no great interest to have a little time to themselves to be used in sight-seeing or otherwise, as they saw fit. As it was, every available hour of every day of the convention was filled up with some special programme which members did not wish wholly to neglect, so that many of them failed to find time even for a drive around the city.

Such a subdivision of the proceedings would require, of course, that most of the papers to be read should be known some time in advance, and that advance proofs of the papers should in general be sent out to members interested, before the convention, for the preparation of discussions; but the self-interest of members would lead them to exert themselves in this direction, it is probable, if the effort were made, and the interest of the proceedings would certainly be greatly enhanced.

Nevertheless, it is not intended in these suggestions to seem over-critical nor to imply that the convention was in any respect a failure. Far from it. The attendance was far larger than at any previous convention, 226 against 150 last year, with more than double the number of ladies and visitors; the reception in Buffalo was in every way cordial and gratifying, and the personal meetings and discussions—which must always remain one of the best excuses for such gatherings—were in no way interfered with by the imperfections of the formal proceedings. The weather was in the main good, and there were probably few in attendance who will not wish to attend the next convention if in their power. But the management of the public meetings should be improved or the reading of papers abandoned altogether, and it should be made possible for questions of organization and general policy to be fully and frankly discussed by any member.

## NEW YORK GRAIN RECEIPTS.

The receipts of grain and flour at New York in May were exceptionally light—the smallest since 1877, when almost all traffic was phenomenally dull. For eight years the rail receipts in May have been:

Year.	Bushels.	Year.	Bushels.
1877	3,894,244	1881	8,306,291
1878	5,367,746	1882	4,526,891
1879	7,471,529	1883	5,463,463
1880	5,058,597	1884	4,376,181

The whole seaboard receipts have been small for the past two or three years, as we have shown, and the New York railroads have not had an especially small share of the business this year. As, however, there are two more roads carrying to New York than there were before last year, and as last May they were carrying at an extremely and unprofitably low rate, it might have been expected that they would have a larger share than usual, by diverting shipments from the canal, which, as we show elsewhere, they have not done, and they carried less than in those months of

the year when their rates were higher, the rail and water receipts at New York in successive months of the year having been:

	January.	February.	March.	April.	May.
Rail.....	5,760,071	4,132,035	6,000,083	7,040,578	4,376,181
Water....	211,558	248,035	278,797	240,187	3,435,612
Total....	5,971,629	4,380,070	6,278,880	7,280,765	7,811,793

The 15-cent rate had a great effect on shipments in April, but it seems to have had absolutely no effect in May, when the canal was opened, as what the canal obtained was taken mostly from the railroads, which carried 38 per cent. less in April, while last year, with a 25-cent rate and the canal open the same as this year, the rail receipts were larger in May than in April.

Since the rail rate was reduced to 15 cents the percentage of receipts by the several roads has changed materially. In the first three months of the year 55.4 of the rail receipts were brought to New York by the New York Central and only 20.2 by the Erie. In April the New York Central's share was but 33.8 and in May 39.5 per cent. of the whole, the Erie's 37.8 and 33.7 per cent. The figures are:

	Jan., Feb. and March.— Bushels.	P. c.	April and May.— Bushels.	P. c.
N. Y. Cen.....	8,808,275	55.4	4,105,170	36.0
Erie.....	3,213,781	20.2	4,132,723	36.2
Penna.....	1,741,873	11.0	1,727,271	15.1
Lacka.....	1,180,419	7.4	808,690	7.1
Other roads.....	947,841	6.0	642,905	5.6
Total.....	15,892,189	100.0	11,416,759	100.0

Which, being interpreted, means that when the traffic was heavy and was worth something, the New York Central took the most of it, but when it became worthless the Erie took the lead, and a greatly increased proportion arrived by it and the Pennsylvania. As the receipts by the unspecified "other roads" were but trifling in previous years, we may assume that this year they were nearly all by the new West Shore railroad. The low rates seem not to have discouraged it much, for these "other roads" carried nearly as large a proportion in April and May as in the previous months. But the course of receipts by the Lackawanna has been peculiar. In the first three months of the year it brought 7.4 per cent. of the New York rail receipts; in April, when the first low rates had their effect, and when receipts were large, it brought 9.1 per cent.; but in May, under the same tariff, but in competition with the canal, it brought but 3.8 per cent. of the very small rail receipts—only 167,446 bushels, which is not a good day's business for the canal. We may infer from this either that the Lackawanna at first welcomed business at the low rates, but after trying it did not like it and discouraged it, or that it was less able to compete with the canal than the other roads.

The percentages arriving by the different roads in May this year and last were:

	May	N. Y. Cen.	Erie.	Penn.	Lack.	Other.
1884.....	39.5	33.7	16.1	3.8	6.9	
1883.....	41.8	29.0	17.4	10.9	0.9	

The larger part of the difference is due to the West Shore, which probably carried 6 per cent. of the whole this year, and seems to have taken it chiefly from the Lackawanna, the Erie's gain of 4.7 per cent. being offset nearly by the loss of 2.3 by the New York Central and 1.3 by the Pennsylvania.

Lake navigation having been open in May the new roads, whose rail connections are imperfect as yet, had opportunity to secure grain shipments which they did not have in previous months. The Lackawanna especially, which makes large shipments of coal to the West, could have, it would seem, secured a great deal of grain if it had been willing to accept it at current rates. Actually it carried less than in any other month since August, and little more than a fourth of what it carried in April.

For the five months ending with May the receipts at New York by the different railroads, and by water, have been, for the last two years:

	1884.	1883.	P. c. of rail— receipts.	1884.	1883.
N. Y. Cen.....	12,913,445	16,738,360	47.3	46.3	
Erie.....	7,346,504	11,499,316	26.9	31.8	
Penna.....	3,460,144	5,255,105	12.7	14.5	
Lacka.....	1,919,109	2,360,842	7.3	6.5	
Other roads.....	1,590,746	329,772	5.8	0.9	
By rail.....	27,308,948	36,183,395	100.0	100.0	
Coastwise.....	1,168,656	1,684,172	3.7	4.0	
Canal.....	3,355,533	3,791,710	10.5	9.1	
Total.....	31,833,137	41,659,277			

The total receipts were nearly 10 millions (22.6 per cent.) less this year than last, and nine-tenths of the decrease was in the rail receipts, which were 86 per cent. of the whole this year, against 87 per cent. last year. Taking the five months together the variations in the percentages carried by the different railroads are not nearly so great as we have shown above for different months and periods, the Erie showing a considerable loss, about equal to the gain by "other roads" which we ascribe to the new West Shore. Perhaps as noticeable as anything is the very small share of the rail grain



which the two new roads bring, though they are both roads to Buffalo, where the lakes give them access to the chief markets. Together they have 13.1 per cent. of it this year, not half as much as the Erie and not one-third as much as the New York Central. It cannot be expected that these new lines will long be content with so small a part of this traffic, unless it remains permanently unprofitable. As rates have been this year there has been no motive for competing for it, but they will not always be so low, and the new roads must be expected in course of time to increase largely their share of this traffic.

#### NEW RAILROAD LEGISLATION IN ENGLAND.

A bill has recently been introduced into Parliament making important changes in the powers of the English Railway Commission. It is by no means certain to pass at this season; but whether it passes or not, it foreshadows the course which English railroad legislation is likely to take in the immediate future. It is no mere haphazard proposal, like so many of the bills brought before Congress. It is officially introduced by Mr. Chamberlain, President of the Board of Trade, and is based upon the report of a strong Parliamentary Committee which had spent two years in studying the questions at issue. It may be taken as expressing the deliberate views of a number of leading Englishmen of both parties.

It is now eleven years since the English Railway Commission was established. It was a new piece of machinery for carrying out an old law. The act of 1854 defined the relations between the railroads and the public. But it had remained to a great extent a dead letter. Cases constantly arose under it of which the courts would not and could not take cognizance. Others involved great delay and expense to the complainants; so great as to deter men from having recourse to the courts when the law was plainly on their side. To meet these difficulties the Railway Commission was established. It was intended to enforce those parts of the act of 1854 which the courts could not enforce, and to secure quick and comparatively cheap relief to those who could not afford the expense of a long lawsuit.

It was avowedly an experiment—originally established for five years, renewed only for still shorter periods. It is neither a complete success nor a decided failure. Its best work is its indirect work. The fact that such a tribunal is there prevents a great many disputes from arising, and acts as a check upon arbitrary power. But the evidence before the committee of 1881-82 showed that its direct results left much to be desired. It was only empowered to deal with cases under the act of 1854, so that it often suffered for want of jurisdiction. It could not enforce decrees of *mandamus*. It could not prevent appeals from being taken to a superior court, so that if the railroad companies chose to contest the case it cost the complainant about as much time and money under the new system as under the old. The Commission suffered because its powers were so ill-defined. Some of these difficulties it is now proposed to remove. The effect of Mr. Chamberlain's bill, if adopted, would be to bring the powers of the Commissioners much nearer to those of an ordinary court of law. It gives them jurisdiction under the special railroad acts as well as under the general act of 1854. It enables them to enforce their authority like any other court. For the roundabout modes of procedure hitherto in use it substitutes an explicit right of appeal under some restrictions which are perhaps more apparent than real. Appeal is granted only in those cases where it shall be specially admitted either by the commissioners themselves or by a court of appeal. Of course the last exception makes the whole restriction amount to very little, though the railroad companies object strenuously that their right to appeal is too much restricted.

It is proposed to make the Commission permanent. No further change is to be made in its constitution. Many of the railroad men would have preferred a Commission composed entirely of lawyers, but the parliamentary committee considered this as out of the question. Provision is made by Mr. Chamberlain's bill for the occasional employment of technical assistance (assessors) in cases where it may be demanded.

The matter of direct control over rates is not settled by the proposed bill, and remains pretty much where it was before. On one point there is a curious compromise. The state has always exercised a certain control over the mileage rates of the English railroads, but the roads have claimed the right to make an arbitrary terminal charge—not merely the "handling terminals," for loading and unloading, but the "station terminals," for use of sidings, expense of signal men, interest on station buildings, etc. Under this head of station terminals the roads

have claimed the right to charge what they pleased. The Commissioners have, in a very recent decision, denied their right to make any charge at all, holding that the legal mileage rates were intended to cover everything but "handling terminals." The present bill proposes that reasonable station terminals be granted to those roads (and only those) which submit a revised classification of goods under which their mileage rates may be regulated.

These are but a few among many provisions; but they are the only ones affecting the Railway Commission which are likely to be contested. At present they seem to exasperate both parties. This is because they parcel off a piece of disputed ground where each party formerly claimed the whole. The railroad men held that there was really no occasion for the Commissioners; the shippers held that they ought to be allowed to settle pretty much everything. Therefore the railroad men are dissatisfied to see the Commission made permanent and given independent power; while the shippers are dissatisfied to see that power limited by the right of appeal, or the allowance of station terminals.

There can be no doubt that the bill offers some great advantages. It settles many points which have hitherto been at loose ends. It substitutes definite and efficient powers for vague ones. The one serious danger is that it may lead to a determined attempt on the part of the Commissioners to base rates upon cost of service instead of value of service. They have tried to do so in many cases which have come before them in the past. There is some reason to fear that they may, with their increased powers, pursue the same policy on a larger scale in the future.

The meeting of the Joint Executive Committee last week was the first since Jan. 10. There was some important business transacted besides the agreement to advance rates on the 24th inst. and the 21st prox. The east-bound traffic which is most affected by prices, foreign demand and competition, etc., consists chiefly of grain, flour and provisions, and of these grain very largely and flour to some extent are affected by the competition of the lakes and canals when navigation is open. The result is that it is frequently necessary to change the rates on these articles when there is no need to change them on other articles in the seventh and eighth classes, with which they are classed. At the meeting last week steps were taken for making grain and flour, mill stuffs, flax and cotton seed and cake in a special class, leaving some 60 other articles in the eighth class. The advance June 24 is to be to 20 cents per 100 lbs. from Chicago to New York on the articles in the proposed special class, and 25 cents on other eighth-class freight, which will thus bear the same rate as the seventh class until the further advance of 5 cents on grain and seventh class, July 21. By far the larger part of the shipments in the present eighth class consists of what is to be put into the special grain class; but the difference on the other articles will amount to a sum worth saving, and certainly not lightly to be thrown away, as it has been.

An effort to fix upon the proportion between live-stock and dressed-beef rates was not successful. Originally, many months ago, Mr. Fink advised that the dressed-beef rate be made 92½ per cent. higher than the net live-stock rate—77 cents per 100 when the live-stock rate is 40 cents. The carriers of dressed beef would not listen to this, and in the competition between them and the live-stock carriers, rates have been made unprofitably low for both. A recent recommendation by Mr. Fink was that the dressed beef should pay 75 per cent. more than live stock. At the meeting last week, Mr. Seargeant, of the Grand Trunk, refused to accept this, and called for arbitration. It carries few cattle and much beef. Mr. Blanchard, of the Erie, which carries both, proposed that, until arbitration, the dressed beef pay 70 per cent. more—68 cents against 40—and Mr. Hayden, of the New York Central, which, with the Pennsylvania, urged the largest possible difference, having a great interest in the live-stock traffic, offered to accept a difference of 75 per cent., but would not consent to an advance in live-stock rates at present, owing to the position of the Lackawanna road. There was so much difference of opinion on the propriety of an advance at present that none was made, and it was agreed that the Trunk Line Executive Committee should appoint one representative of the dressed-beef shippers and one representative of the live-stock shippers, who with the Arbitrator, Mr. Charles Francis Adams, Jr., should form a board of arbitration and decide the matter finally, if it is not settled sooner by the consent of the Grand Trunk to accept a difference of 75 per cent., of

which there were hopes, and a conference at which it and the Lackawanna and West Shore roads are to be present is to be held on this important subject.

At last week's meeting the committee appointed last January to report on the advisability of establishing a clearing-house in connection with Mr. Fink's office was discharged, no responses to its suggestions having been received. Mr. Charles Francis Adams, Jr., was re-elected Arbitrator for one year from June 1.

Last week we published the reports of the earnings in May of 36 railroads, amounting in the aggregate to \$14,883,905; this week we have reports from 23 more, but their aggregate earnings amount to only \$3,377,269, being mostly small roads. But there still remain to report many of the roads with largest earnings, as may be inferred from the fact that while the aggregate earnings of the 59 roads in May were \$18,261,174, they and 14 more in April earned \$28,079,248. For some sections of the country, especially the East, the returns are still insufficient to enable us to judge of the course of earnings.

The 59 roads that have reported so far in the aggregate make the following showing:

	1884.	1883.	Inc. or Dec.	P. c.
Miles.....	40,710	37,287	+ 3,423	9.1
Earnings.....	\$18,261,174	\$17,923,114	+ \$337,060	1.9
Earn. per mile.....	449	481	- 32	6.6

The increase is small in view of the large increase in mileage, and there is an important decrease in earnings per mile.

Of the 23 roads whose reports are published this week, 12 have a decrease in total earnings. Most of these decreases are small, but the Grand Trunk's is 12½ per cent., the Chesapeake & Ohio's 14½, the Indiana, Bloomington & Western's 16½ per cent. The only large gain by a road that has no increase in mileage is 38½ per cent. on the Kansas City, Fort Scott & Gulf.

There have been reports now from 12 roads west and northwest of Chicago, besides the four northwest of St. Paul, and which were discussed last week. Only four of these 12 had a decrease in earnings last May, but these four include the largest roads, having about two-thirds of the total mileage. The aggregate mileage and earnings of these 12 roads were:

	1884.	1883.	Inc. or Dec.	P. c.
Miles.....	13,696	12,812	+ 884	6.7
Earnings.....	\$6,088,333	\$6,101,477	- \$13,144	0.2
Earn. per mile.....	446	476	- 30	6.3

In April these roads had an increase of \$151,519 in total earnings, and a decrease in earnings per mile from \$433 to \$417, or 4 per cent., so they declined more in May.

The only other section in which roads enough have reported to give a fair clue to the condition of traffic is the South east of the Mississippi. There are reports from 19 of these roads, seven of which have some decrease in total earnings, which is considerable in the case of three Virginia roads—the Chesapeake & Ohio, the Norfolk & Western, and the Shenandoah Valley. The aggregates of the 19 are:

	1884.	1883.	Inc. or Dec.	P. c.
Miles.....	9,040	8,723	+ 317	3.6
Earnings.....	\$3,369,701	\$3,265,573	+ \$104,128	3.2
Earnings per mile.....	373	374	- 1	0.3

The earnings per mile are substantially the same this year as last. In April these 19 roads had an increase of \$416,583, instead of \$104,188, and their earnings per mile increased from \$339 to \$374. Thus the change was more favorable in April, as in the case of the Northwestern roads.

The only road with an important trunk-line traffic that has reported is the Grand Trunk, whose large decrease of 12½ per cent. we have noted. In April its decrease was 15 per cent. The Indiana, Bloomington & Western, which has some of this traffic, lost 16½ per cent. in May and 9½ in April; the Alton & Terre Haute main line gained 7½ per cent. in April and 2½ in May.

At last it has been determined to advance east-bound rates, and on June 24 (next Tuesday) the basis of 15 cents on grain and flour from Chicago to New York, fixed March 21 to meet unauthorized cuts, will be made 20 cents, and it is further announced that on July 21 there will be another advance to 25 cents.

There will thus have been three months of a rate at least 40 per cent. lower than was necessary, resulting from the eagerness of certain persons to increase their traffic when they could not do it without violating their agreement to maintain rates. It has been a very costly lesson, and it is to be hoped that it has been well learned. Under the 15-cent rate there will have been shipped from Chicago alone about 900,000 tons of freight, earning about \$2,700,000 gross, which just about covered expenses. At a 25-cent rate the shipments might not have been more than 600,000 tons, but the gross earnings would have been \$3,000,000, and the net earnings about \$1,200,000, against



nothing or next to nothing as the rates have been. If there has been such a loss on the Chicago shipments there was perhaps as much more on other east-bound shipments. At all events, the railroads have paid an enormous fine for the bad conduct of some of their agents, and have paid it at a time when many of them had not a dollar to spare, and when two of the most important have been unable to earn all the interest on their bonds.

There can be no doubt that an advance to 20 cents will materially reduce rail shipments, from lake ports at least, and that a 25-cent rate will still further reduce them, unless by that time (July 21) there should be large winter wheat shipments from the Ohio valley—from points distant from lake ports—which is possible. But there is no reason to regret the loss of a profitless traffic, and the roads should make much more out of 20,000 tons a week at \$4 and \$5 a ton than they have been making out of 50,000 tons at \$3. The larger part of the shipments now do not go as far as the seaboard cities; perhaps three-fourths or seven-eighths of them cannot be forwarded by canal. There can be no doubt that there will be an important traffic at 25 cents, which was the rate of 1882 and 1883, and less than the summer rate of any previous years except in times of railroad war.

The through rail shipments from Chicago during May, including this year those from the junction points that take Chicago rates, as Joliet, Matteson, Englewood, etc., have been, in tons, for six successive years:

1879.	1880.	1881.	1882.	1883.	1884.
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The inclusion of the junction points, as nearly as we can ascertain, adds about one-seventh to the shipments; neglecting this the increase over last year was 82 per cent., over 1882, 133 per cent., and the shipments were larger than in any other May except in 1879, when the rate was 10 cents per 100 lbs., instead of 15 cents, as this year, and when, therefore, the railroads were taking the grain away from the vessels, as they do when they carry without profit. The gross earnings from these shipments in the several years were about as follows:

1879.	1880.	1881.	1882.	1883.	1884.
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Thus the gross earnings of the road from this traffic were larger this year than in any other except 1881. Whether there was any profit in it whatever this year is very questionable, however. At an estimated cost of \$1 per ton there was a profit as follows:

1879.	1880.	1881.	1882.	1883.	1884.
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The shipments for the five months ending with May, corrected this year to include the shipments since Jan. 7 from the junction points that take Chicago rates, have been as follows:

1879.	1880.	1881.	1882.	1883.	1884.
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If we subtract one-seventh from this year's shipments to represent those going from junction points we have left 1,143,146 tons, which is probably more nearly comparable with the shipments of previous years than those given above. The figures so obtained are slightly greater than the shipments of last year and 1881, and a little less than those of 1879, and were 20 per cent. more than those of 1880, and 17 per cent. more than those of 1882. So far as the total movement is concerned it compares well this year with that of any other; but when the shipments of one of the six older roads are compared with those it carried in previous years there is a great decrease. The five roads that carried 1,127,908 tons in 1879 and 960,602 in 1880, carried 839,869 tons this year, even including the junction points shipments this year and not before, and the six roads that carried 1,054,190 tons this year (including junction shipments) carried 1,127,073 tons in 1881, 930,353 in 1882, and 1,072,506 in 1883, not including junction shipments. There is no doubt, however, that at current rates the railroads will have more to carry than ever before except after June 17, 1881, when the rates of the railroad war gave them a traffic about like that which they have been carrying this year under the 15-cent rate.

The low rail rates have apparently less effect on canal than on lake shipments. The railroads have been carrying an unusually large share of the grain shipped from the Northwestern markets since navigation opened, but they have not carried any larger proportion of the grain delivered at New York than they did last year, when the rail rate was two-thirds higher, the canal having been opened one day longer this year. Indeed, the percentage of canal shipments was larger than in 1882, when the canal was opened the whole of May, and the rail rate was also two-thirds more than this year. We have to go back to 1880, when the rail rate was twice as great as this

year, to find a larger percentage of canal shipments than there has been this year, excluding 1881, when the canal was opened but 15 days in May, against 26 days this year. The rail and water receipts at New York in May, and the percentage of each, have been for four years:

	May 17, 1881.	Canal opened, April 11, 1882.	May 7, 1883.	May 6, 1884.
Bushels:				
By rail.....	8,663,416	5,677,947	5,463,463	4,376,181
By water.....	6,906,110	3,546,411	4,181,101	3,545,612
Per cent.:				
By rail.....	55.6	61.6	56.6	55.2
By water.....	44.4	38.4	43.4	44.8

An examination of the different articles carried shows still more sharply how far the railroads are from securing that part of the traffic for which the canals can be said to compete. For these statements include flour reduced to bushels, and the canals have practically long ceased to be carriers of flour. *Excluding* flour, the railroads carried 2,575,001 bushels of grain last month, and the canal and other vessels 3,465,701 bushels, or 57½ per cent. of the whole, though the canal was open but 26 of the 31 days, and average deliveries per day were 129,031 bushels by canal and 83,065 bushels by rail. This is interesting because the rail rates were extraordinarily low this year, and should, if they are ever likely to do so, have diverted the bulk of the canal grain. Apparently they have not taken any more of it at a 15-cent rate than they did last year at a 25-cent rate, though there was one more railroad to carry the grain this year; and apparently if they wish to divert the grain from the canal they will have to make rates lower than a Chicago basis of 15 cents per 100 lbs., which they are not likely to do until there has been some considerable reduction in working expenses.

The grain exports of the United States in May last, as shown by the report of the Bureau of Statistics, were about 6 per cent. greater in quantity but not 2 per cent. greater in value than last year. There was a decrease amounting to 2,000,000 bushels in wheat and flour, while the decrease was in the comparatively low-priced corn. The decline from \$1.17 to \$1.01 per bushel in the value of wheat, from \$5.85 to \$5.35 per barrel in the value of flour, and from 66 to 60½ cents per bushel in the value of corn exported accounts for the small increase in value. The comparison with the exports in May in years previous to 1883 is not so satisfactory, the figures having been:

Year.	Flour, bbls.	Wheat, bush.	Corn, bush.	Wheat and Flour, bush.	Toal, bush.
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The flour exports are the largest ever made in May, but with the exception of last year the wheat exports are the smallest since 1877; and, taking flour and wheat together, the exports this year, though 37 per cent. more than last year, and even 6 per cent. more than in 1882, were very much less than in any of the four years ending with 1881, and 41 per cent. less than in 1881.

The corn exports were 28 per cent. less than last year, only 8½ per cent. more than in that worst of years 1882, and not half as great as in 1878. 1879, 1880 or 1881.

The totals have varied little for the last three years, but were a little the greatest this year; but they were little more than half as great in these three years as in the three years previous, and but little more than in 1877, which was a very unfavorable year.

The exports have fluctuated comparatively little from month to month this year, as the following statement of them will show:

	January.	February.	March.	April.	May.
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Last year the exports were very large in the first three months of the year and then fell off greatly. This year they were slightly larger in April and May than in earlier months.

For the five months ending with May the exports of flour, wheat and corn have been, in bushels, for seven successive years:

Year.	Bushels.	Year.	Bushels.
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The exports for the five months thus were 22 per cent. less this year than last, only 5½ per cent. less than 1882, 40 per cent. less than in 1881, and 41 per cent. less than in 1880. In 1880 the exports per inhabitant were more than 1½ bushels; this year only 1 bushel. The corn exports were smaller even than in 1882.

The values of the total breadstuffs exports in May,

in the five months ending with May, and in the eleven months ending with May, for four years have been:

	1881.	1882.	1883.	1884.
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The value of the exports in May was not very different from that of the last two years, but was 40 per cent. less than in 1881. For the five months the value this year was 22½ per cent. less than last year, nearly the same as in 1882, and 37½ per cent. less than in 1881, and for the 11 months the value this year was 24 per cent. less than last year, 13½ per cent. less than in the bad year 1882, and 41 per cent. less than in 1881, the decrease from that year being just \$100,000,000.

The exports of live cattle, meats and dairy products in May were considerably larger this year than last, the aggregate value increasing from \$7,793,994 to \$9,395,542, on 20½ per cent. This is an important change for the better, for in previous months of this year there had been a very large decrease, as follows:

	1884.	1883.	Inc. or Dec. P. c.
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The change is sudden as well as great, for in April the decrease was nearly as large as in previous months, as follows:

	1884.	1883.	Decrease.	P. c.
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Now after this decrease of more than \$2,000,000 in April we have an increase of \$1,600,000 in May, when the value of the provision exports was \$2,632,000 more than in April.

Compared with last year there is an increase in the quantities of everything—live stock, salt beef, tallow, and all hog products—except corned beef, fresh beef, butter and cheese, but by far the larger part of the increase is in hog products. Compared with April there is some increase in live animals, tallow and butter, a large one in cheese, and an enormous one in hog products. In successive months of this year the exports of hog products have been in thousands of pounds:

	January.	February.	March.	April.	May.
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In every year before since 1876, except one, the exports have been less in May than in April, while this year they were 90 per cent. greater in May.

Great as the increase in exports was in May over previous years, they were still not large in comparison with those of years previous to 1882. For eight successive years the exports of hog products in May and for the five months ending with May have been in pounds:

Year.	May.	Five Months.
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Thus though the exports in May this year were nearly 50 per cent. greater than last year and 24 per cent. greater than in 1882, they were 16 per cent. less than in 1881, not half as great as in 1880, and about 37 per cent. less than in 1879 or 1878. And in spite of the great increase in May the exports for the five months this year are much less than in any other given in the table—25 per cent. less than last year, 32 per cent. less than in 1882 or 1877, 58½ per cent. less than in 1881, and 62 per cent. less than in 1880. The improvement in May was needed, therefore, and it is to be hoped that it will continue, for this, one of the most important of our exports, was becoming insignificant.

The value of the hog products exported in May was nearly 56 per cent. of the value of the total provision exports, while last year it was 51 per cent. But the exports of cattle, beef, tallow and dairy products were more important in previous months of this year, and their value increased for the five months, as follows:

	1884.	1883.	Inc. or Dec. P. c.
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A great many railroads have an important traffic in cattle which have few hogs to carry, and a growth in the exports of cattle and beef is of importance to them. The increase in value this year cannot be called great, but it contrasts strongly with the great decrease in exports of hog products, and it is due chiefly to an increase in the exports of live cattle, which was 33 per cent. in quantity and 40½ per cent. in value.

The Union Pacific statement for April again shows a considerable decrease in gross and a large decrease in net earnings, though the decrease is not so great as in previous months of this year. For each of



the four months the earnings and expenses this year and last have been:

	January.	February.	March.	April.
Gross earn.	1884 \$1,538,908	1883 \$1,517,965	1882 \$1,572,712	1881 \$2,128,163
Expenses.	1884 1,305,904	1883 1,301,019	1882 1,204,533	1881 1,177,025
Net earn.	1884 232,994	1883 216,946	1882 368,179	1881 951,138

Thus the decrease in gross earnings was \$234,312 in April, against \$419,046 in March, \$125,255 in February and \$377,946 in January. The increase in working expenses was less in April than in the preceding months, and the decrease in net earnings was \$332,094 in April, against \$527,911 in March, \$318,820 in February and \$664,188 in January. Thus the decrease in both gross and net was less than in any other month except February. Nevertheless the decrease in gross in April was 10 per cent. and in net 26 per cent.

For four successive years the mileage, earnings and expenses of this road in April have been:

	1881.	1882.	1883.	1884.
Miles.	3,450	3,740	4,305	4,258
Gross earn.	\$2,140,014	\$2,369,009	\$2,363,277	\$2,128,965
Expenses.	1,382,451	1,331,196	1,079,243	1,177,025
Net earn.	\$757,563	\$1,038,413	\$1,284,034	\$951,940

The gross earnings were less this year than in 1881 even, though the mileage has increased 808 miles (23 per cent.) since then, and there is a decrease in earnings per mile from \$620 to \$500. But the working expenses are less this year than in any other except last year, and the net earnings, though 26 per cent. less than last year, were but 84 per cent. less than in 1882, and were 26 per cent. more than in 1881. Thus the large decline in net earnings is due more to the fact that they were extraordinarily high last year than to their being extraordinarily small this year.

For the four months ending with April the earnings and expenses have been:

	1881.	1882.	1883.	1884.
Gross earnings.	\$7,251,473	\$8,773,109	\$8,345,113	\$7,138,553
Expenses.	4,837,228	5,397,765	4,201,507	4,887,961
Net earnings.	\$2,414,245	\$3,375,344	\$4,143,606	\$2,300,592

The gross and net earnings and expenses this year have been quite similar to those of 1881; the decrease from last year is \$1,156,560 (14 per cent.) in gross and \$1,843,014 (44 per cent.) in net earnings. Now what is especially notable is, that the increase in net earnings last year over 1882 was due entirely to the enormous decrease of \$1,196,258 (22 per cent.) in working expenses, notwithstanding a considerable increase in the mileage of road worked. If what was charged as expenses in 1882 was strictly chargeable to cost of working, it is altogether probable that a very large part of the great decrease in 1883 consisted of expenses postponed instead of expenses saved, and that, therefore, the true decrease in net earnings this year is not so enormous as it appears—more than \$3 per share of stock for the four months.

After July of last year the expenses of this road began to be much larger than in the previous year, and we may expect that after July this year the decrease will not be so great as it has been heretofore.

It seems to take the New York railroad companies an unconscionably long time to make up the quarterly balance sheets and income accounts which are required by the Railroad Commission. The New York Central statement for the second quarter of its fiscal year (January to March) is but just at hand, and many companies have not yet reported for that quarter. These reports are valuable about in proportion to their freshness. They are intended to afford stockholders and others information of the actual condition of their property, rather than of its past history; and it is not sufficient to know what the condition was three months ago.

The New York Central reports for the first and second quarters and the first half of its fiscal year make the following showing:

	3 mos. to March 31.	3 mos. to Dec. 31.	6 mos. to March 31.
Gross earnings.	\$6,710,592	\$7,914,128	\$14,624,720
Expenses.	4,218,893	4,681,799	8,900,692
Net earnings.	\$2,491,699	\$3,232,329	\$5,724,028
Int., rent and taxes.			2,790,000
Surplus.			\$2,934,028
Do. per share.			\$3.28

The dividends paid for the half-year amount to \$4, while the profit earned available for dividend was but \$3.28. The report for the first quarter of the company's fiscal year (ending with December) showed a profit of a trifle more than \$2 per share, so that for the January-March quarter it was but \$1.28 per share. The falling off may be charged to the rates and the diversion of west-bound shipments to new roads. The New York Central had an exceptionally large share of the west-bound traffic in that quarter, however, as is indicated by the fact that it brought 53 per cent. of the grain received at New York in that quarter this year, against 47 per cent. last year, 54.7 in 1882, and 38 per cent. in 1881, so that in this traffic it seems not to have suffered at all in amount by the competition of the new roads,

Unfortunately we have no statement of last year's earnings with which to compare the figures now reported, but must go back to 1881 to find even gross earnings reported in periods that can be compared with these. In 1879, 1880, 1881, and this year, these gross earnings were:

	1879-80.	1880-81.	1881-82.	1882-83.
3 months to Dec. 31.	\$7,575,789	\$8,546,638	\$8,976,142	\$7,914,128
March 31.	6,709,508	7,765,079	7,366,427	6,710,592
Half year.	\$14,285,297	\$16,312,317	\$16,342,569	\$14,624,720
Year.	28,396,583	33,175,913	32,348,395	
P. c. of yr's earnings.	50.3	49.2	50.5	

The earnings this year are curiously similar to those of 1878-9, for the January-March quarter almost exactly the same. Traffic and rates were very good that year in the October-December quarter; in the following quarter east-bound rates were badly demoralized, but shipments were large—much as this year. Later, rates were even lower than this year, so that, as far as we have gone, 1883-84 is very similar to 1878-79. In that year the gross earnings were about \$28,400,000, against \$33,770,000 last year, the gross earnings of the last half of the year having been \$14,110,000. The gross earnings of the first half of the fiscal year were 50.3 per cent. of the year's gross earnings in 1878-79, 49.2 per cent. in 1879-80, when the whole year was favorable, and 50½ in 1880-81, when the last three months were unfavorable. This indicates that the New York Central's gross earnings this year will not be much more than \$29,750,000, which is \$4,020,000 less than last year. As to net earnings, we have no means of knowing what they have been in corresponding periods of previous years. In 1878-79 they were, with taxes, \$16,123,073 for the year; last year, \$20,750,594; the first half of this year, without taxes, \$8,900,692. If half the expenses were in this half of the year in 1878-79, the net earnings then were \$6,223,760 then, against \$5,724,028 this year.

A good harvest may largely increase the earnings of this road, but it cannot have much effect in this fiscal year, and in the present condition of business the company will do well if its profits are as large in the second as in the first half of the year, when they were \$3.28 per share.

The New York, Lake Erie & Western's report to the New York Railroad Commission for the first quarter of this year, ending with March, shows that the net earnings, including those of the ferries, etc., which are not given with the railroad earnings, were \$672,782, while the interest on bonds accruing in the quarter was \$1,231,940, and the rentals and guaranteed interest was \$267,007, making \$1,498,947 in all, and \$826,165 more than the net earnings. In the first quarter of the company's fiscal year (ending with December), the company earned \$145,000 more than the charges for interest, rentals, etc., so that the result of the half-year was a deficit of \$681,000. But this is usually the poorer half of the year for this road, as may be seen by the following statement of the percentage of its net earnings for the whole fiscal year which it earned in this first half of the year in each of the last five years:

	1879-80.	1880-81.	1881-82.	1882-83.
43.4 p. c.	47.0	37.7	39.2	

At the rate of the year when the second half had the least increase over the first half, the net earnings this year would be \$390,000 more in the last half than in the first half of the year, and at the rate of the year when the proportion was greatest in the last half, they would be \$2,040,000 larger in the last half—enough to pay a whole year's interest on the second consolidated bonds, which was passed June 1 last. It cannot be said, however, that there is any present prospect that this half of the year will turn out so well, though it will almost certainly produce much more than the first half, unless the leased New York, Pennsylvania & Ohio road should fail to earn its rental.

The trip over the New York, West Shore & Buffalo Railway by the special train tendered to the American Society of Civil Engineers for the benefit of Eastern members wishing to attend the Buffalo convention was to many perhaps as interesting and instructive as any part of the proceedings proper. About 230 members and ladies availed themselves of the opportunity, and it was surprising to note how many there were, even among the engineers, who were unaware of the solid and handsome manner in which every detail of that road has been carried out. The purpose of the managers in tendering the train, which was doubtless chiefly to advertise the road and not merely as a courtesy, was thus fully carried out, or at least perhaps as fully as could have been accomplished in any other way at the same expense. The condition of the track and the road generally is wonderfully good for so new a line. The main tracks are unbroken for their entire length by a single switch,

the Wharton switches and spring-rail frogs being used exclusively. The track is laid with extra long (36 in.) angle fish-plates, and is well ballasted with a good quality of clean gravel, which, when it is a good quality, so as to be free from dust, makes perhaps a pleasanter road to ride over than when it is of stone, although the latter, no doubt, is more desirable and perhaps less costly to maintain. The station buildings, switch and engine houses, and other structures along the line are especially noticeable for their neat and tasteful design, and perhaps did as much as any other detail to impress initiated and uninitiated alike with the idea that they were riding on a first-class and thoroughly studied road. The rolling stock was the subject of universal praise; the locomotives especially, to which the late Howard Fry gave such careful study, and in which he took such pride, were the subject of general comment and praise among the railroad men of the party. It may not be generally known that they are quite unique in many of their details as well as in their general appearance, and their "business-like" and powerful look, which impresses almost every one who sees them, is, we are assured, well borne out by their performance in service.

The scenery upon the line is also very attractive, especially at this season of the year, and there seems no reason why the line, once fully completed and equipped, should not secure a large share of the business it is intended to compete for; but in one very important respect, at least, the arrangements seem faulty, and this difficulty was especially conspicuous on the late trip of the engineers. The arrangements for eating seem very defective. No doubt, the West Shore stations were laid out with the idea that dining cars would be largely used. Nevertheless, they can hardly be used on all trains, nor exclusively in the case of very heavy trains, and a single train of very moderate size will overcrowd any station on the line. The engineers' train of about 200 passengers could hardly be called abnormally large, yet it was at least twice too large for comfortable accommodation at either of the eating stations. Partly for that reason and partly from the negligence or misfortune of the West Shore eating-house manager, the party had the privilege of paying a high price (\$3.65 each for the round trip, including four meals) for decidedly poor meals. One could not apply to them, one meal excepted, either half of the maladroit countryman's compliment—that the food was "very good, what there was of it," nor that there was "plenty of it, such as it was."

It is particularly unfortunate for a company which is but beginning to make its road known to the public to have such things occur. First impressions are likely to be lasting, and one's impression of a journey is made up of the aggregate of his sensations. Now however comfortable one may be in other respects, if he is insufficiently or badly fed during a whole day's journey, the balance is a feeling of decided discomfort. Therefore it is to be feared that what the company so generously gave the engineers—a ride in beautiful and comfortable cars over a magnificent structure and through a beautiful country—did not have its due effect in leading them to look favorably upon this road as a route for travel, because of the fault of its caterers.

The eastward shipments, through and local, of flour, grain and provisions from Chicago for the week ending June 14, by the imperfect report to the Chicago Board of Trade, were 56,177 tons this year, against 25,102 tons in 1883, and 18,350 in 1882. For six successive weeks these shipments and the percentage of the total going by each route have been:

	May 31.	May 17.	May 31.	May 14.	June 7.	June 14.
Flour.	9,412	7,877	9,914	5,922	6,399	5,108
Grain.	33,603	32,376	37,327	37,905	34,782	43,149
Provisions.	7,583	6,678	8,434	8,391	9,534	7,925
Total.	50,598	46,931	55,675	52,218	50,615	56,177
Per cent.:						
C. & Grand T.	14.7	20.9	25.3	15.0	18.4	13.2
Mich. Cen.	13.8	10.0	14.4	12.9	11.4	13.4
Lake Shore.	16.0	16.7	13.9	18.1	14.5	15.0
Nickel Plate.	12.6	11.9	10.2	10.8	8.1	11.6
Ft. Wayne.	18.9	14.2	12.4	16.3	17.2	13.7
C. St. L. & P.	8.2	7.8	5.5	9.1	7.5	7.7
Balt. & Ohio.	7.6	8.6	9.6	9.3	12.3	13.3
Ch. & Atlantic.	9.2	8.9	8.7	8.5	10.6	12.1
Total.	100.0	100.0	100.0	100.0	100.0	100.0

The shipments last week were the largest for six weeks, and 11 per cent. more than the week before. As before since March the shipments were extraordinarily large for the season, due to the diversion of grain from lake vessels by the low rates. The increase last week was wholly in grain, there having been a decrease in flour and provisions. The announcement of an advance in the rail rate June 24 to 20 cents was made too late to have any effect on the week's shipments, and is hardly likely to have much effect, as the lake vessels will always afford low rates.

There is nothing particularly noticeable in the distribution of the shipments. The three Vanderbilt roads carried 40 per cent. of the whole, and the two Pennsylvania roads



21.4 per cent. The Chicago & Grand Trunk's percentage was the smallest for a long time, but not very small; the Baltimore & Ohio's was larger than usual.

Lake rates have advanced from  $1\frac{1}{2}$  to  $2\frac{1}{4}$  cents a bushel for corn and  $\frac{1}{4}$  more for wheat from Chicago to Buffalo, without waiting for the advance in rail rates.

The Northern Pacific's earnings continue to fall off. There is still a large gain over last year (though only about in proportion to the increase in mileage), but the earnings have been less in June than in May, and less in May than in April; while in previous years there was always an increase. Thus the earnings per day in April, May and June (for the first 14 days of June this year) have been for three years:

	April.	May.	June.
1884.....	\$47,953	\$41,345	\$38,275
1883.....	22,183	24,503	25,781
1882.....	15,034	20,541	23,487

In 1883 the earnings in June were 56 per cent. more than in April; in 1882, 16½ per cent. more; this year, 20 per cent. less.

This is probably because the rush of immigrants and miners has ceased, and as yet there is little to take its place, while in previous years there was a great movement of speculators after early spring, and, most of all, the immense traffic in construction materials, which the report for last year showed to have averaged \$127,000 per month, and in May and June probably was as much as \$200,000 per month. Thus this year this large amount has to be offset by commercial freight.

After harvest a material increase in the earnings may be expected, as the acreage under cultivation in Dakota has been largely increased, and there is a prospect of a better yield than last year. The immigration to Dakota was not as large as last year, but the falling-off was more in land speculators and traders than in farmers, and the land which was broken last year bears the first crop this year.

The Georgia Pacific Railroad, which has 278 miles of road in operation, in four different and isolated sections, earned \$377,829 gross and \$128,805 net during the eight months ending with May last, which is at the rate of \$1,359 gross and \$463 net per mile. In May the earnings were about at the same rate as for the previous months, amounting to \$47,014 gross and \$17,492 net. This indicates that the net earnings for the year will be about \$700, which is something less than the interest on the bonds. In its unfinished condition it cannot be expected to have a large traffic.

The traffic and earnings of the New York elevated railroads for the four last fiscal years ending with September and the eight months of the current fiscal year ending with May are reported as follows:

Year to Sept. 30.	No. passengers.	Earnings.	Av. rate.
1880.....	60,831,757	\$4,575,667	7.52
1881.....	75,585,778	5,280,274	7.00
1882.....	86,361,029	5,922,688	6.87
1883.....	92,124,943	6,345,258	6.80
8 mos. to May 31, 1884.	64,335,167	4,561,249	7.09

If the traffic for the remaining third of the year were at the rate of the previous eight months, the total for the current year would be 96½ millions, or nearly 4 per cent. more than last year. But these four months include the duldest season of the elevated roads, and they will do well if their traffic is as large this year as last. It will be a notable fact if there is an interruption to the growth of this traffic this year, as seems probable. From 1880 to 1881 there was an increase of 24 per cent., from 1881 to 1882 an increase of 14½ per cent., and from 1882 to 1883 an increase of 6½ per cent., so that there has been all the time a reduction in the rate of growth.

That the earnings are lighter in the summer months than in others may be inferred from the fact that in 1881 the earnings were \$426,791 in July, against an average of \$519,454 for the six months previous, and in 1882 \$457,799, against an average of \$588,770 for the six months previous.

The average fare received, it appears, has varied little from 7 cents since 1880, indicating that three-fifths of the passengers are carried at the 5 cent rate.

The government Railroad Commissioner has submitted to the Secretary of the Interior a statement of the financial condition of the Union Pacific for the five months ending with May, which gives the net earnings as \$2,960,655. Expenditures charged against this income amount to \$729,415 more than the income, but there are included in these expenditures \$50,000 expenses of the Land Department which should be charged to land sales, and \$178,977 for new construction and equipment, which are properly chargeable to capital. There was also a payment of \$162,000 into the company's sinking fund. In these five months one dividend of 1½ per cent., amounting to \$1,065,197, was paid, while by the Commissioner's report only \$335,781 was available for the dividend from the profits of these five months. The Commissioner also submits a statement, showing that there are no assets from the surplus of previous years available for paying a dividend. The floating debt is given as \$11,400,099, against which there are available assets (not including materials on hand) amounting to \$6,063,703. This stock of materials amounts to \$2,622,777, and when normally large properly offsets bills payable for materials, as it is constantly being transformed into earnings, which meet the bills as they come in.

The Committee on Standard Time reported at the late convention of the American Society of Civil Engineers that 92 per cent. of the answers received, which included, we believe, 300 or more replies, gave unqualified approval to what is becoming known as the "24 o'clock" system. A

short but spirited discussion followed in the convention, the sentiment of which seemed to be almost unanimously in favor of the plan. The difficulty as respects clocks and watches, it was pointed out, can be gotten over at nominal cost by the addition of a new circle of numbers, and Mr. Sanford Fleming, the chairman of the committee, who has taken great interest in the subject, evidently has full confidence that the scheme will be accomplished by its adoption, first by the railroads and afterward by the general public. It is beyond doubt desirable if it could once be generally introduced and understood, but it is a far more difficult change to effect than that recently made, since it involves a change in the habits of the people, while the other did not.

The resignation of Mr. A. C. Armstrong, late Purchasing Agent of the Lake Shore & Michigan Southern Railway, recalls the fact that in certain ways he went quite outside the limits which usually bound a purchasing agent's duties by attempting to determine not only the lowest prices at which certain supplies could be bought, but also what grade of supplies it was most expedient to buy. This was especially true in the matter of lubricants, in which, if we do not err, Mr. Armstrong was justly entitled to the credit of effecting a very material economy by investigations initiated and largely conducted by himself, with the co-operation, of course, of other officers in the mechanical department. The net result of all these investigations has been that the cost of lubrication on the Lake Shore & Michigan Southern has been very largely reduced from what it was in former years, mainly by the use of carefully prepared compounds of mineral oil in place of more expensive lubricants. How much the reduction has been and how much of it is strictly legitimate and unbalanced by corresponding disadvantages, which do not appear upon the surface, would, no doubt, be a point on which considerable difference of opinion might exist; but the economy "on the face of the returns" has certainly been large, and that it is believed to be a legitimate result of careful investigation is evident from the fact that several other railroads have copied the practice of the Lake Shore. Mr. Armstrong's results and methods of test have been heretofore given in these columns, but it may be repeated that his investigations led to the simple result that tests for mineral oil lubricants may consist merely of two, a gravity test and a cold test; either of which separately can be easily enough satisfied with inferior oils, but both of which together, it is claimed, are sufficient effectually to separate good and bad lubricants mainly composed of mineral oil.

Another matter to which Mr. Armstrong gave unusually careful attention and the introduction of which he urged, was a more perfect system of mileage record for wheels. The effect of such records on the Lake Shore and other lines has been that whereas a guarantee of 40,000 miles under engine tenders (the only service for which such records were then possible) was considered a fair one ten years ago, competition has now crowded makers up to 60,000 miles, with great benefit to the quality of the wheels. No one road and no one man is entitled, of course, to the credit of this result, but the aggregate advantage has been great enough to make it a legitimate source of congratulation to all those who were instrumental in bringing about "the more excellent way."

The Allegheny Valley Railroad has issued a folder which is a distinct improvement on the usual form, and we trust that the example thus set may be very generally followed. Plans of the business parts of Pittsburgh and Buffalo are printed on the folder, giving the names and position of the principal streets, hotels, depots, street-car routes, etc. A small map of this sort is exceedingly useful to the visitor or traveler. Advertising material of this kind is effective about in proportion to its attractiveness or value to those who receive it. The time-table on a folder may be very interesting while the passenger is on the train, but its value usually ceases with the journey, and the passenger consequently leaves the folder when he leaves the car. But when it has a map of the terminus or other place on the route at the passenger's destination, it becomes valuable for him for a longer period, and is very likely to be preserved long after the journey. The information which such a map gives is precisely such as is hardest for the traveler to get, and the map might well be supplemented by printed information as to the different means of communication between the station of the road issuing the folder and those of other roads, etc.

The foundation for the pedestal of the Bartholdi statue, which is now completed, is remarkable for its far bolder use of concrete than has heretofore been anywhere attempted in this country, or perhaps in the world, it being nearly 53 ft. high, by 91 ft. square at the base and 67 ft. high at the top (35 ft. above low water mark) and containing the enormous mass of nearly 12,000 cubic yards, after deducting for two intersecting archways and a central shaft. There is, of course, concrete and concrete, but such a bold use of it in a situation where it is exposed to such heavy strains and is expected to last for all time, or thereabouts, confirms what has often been suggested, that considerable economy might be realized by a greater use of it in railroad culverts and bridge masonry. The strains upon the foundation will be very great, as the pedestal alone (the backing of which is also to be entirely composed of beton, faced by heavy red granite blocks) will rise to a total height of 117 ft. above the foundation, and the statue itself 151 ft. further, making the total height 330 ft., or 53 ft. higher than the Brooklyn Bridge towers. The wind-strains from such a structure will be hard to compute with exactness, but may be safely set down as enormous, and as indicating that good concrete

might be used to a large extent in railroad work with great economy, especially in arch-work which is to be covered up with earth. One of the objections to its use, and probably the greatest one, is that concrete work must be done "upon honor," and the quality and quantity of cement used must be closely watched, or the stability of the structure will be endangered, whereas first-class stone work almost secures its own permanency in spite of any negligence or bad faith on the part of a contractor. Engineers therefore feel a natural reluctance to assuming responsibility which can be avoided; but that large economy might often be effected can hardly be doubted.

#### Record of New Railroad Construction.

This number of the *Railroad Gazette* contains information of the laying of track on new railroads as follows:

*Chester & Lenoir*.—Extended from Icard Road, N. C., northwest to Lenoir, 4 miles. Gauge, 3 ft.

*East & West, of Alabama*.—Extended from Cedartown, Ga., west to Cross Plains, Ala., 24 miles. Gauge, 3 ft.

*Louisville, New Albany & Chicago*.—Extended northwest to Hammond, Ind.,  $1\frac{1}{2}$  miles.

*New York, Philadelphia & Norfolk*.—Extended from Pocomoke City, Md., southward to the Virginia line, 5 miles.

*Talladega & Coosa Valley*.—Completed from Talladega, Ala., north to Renfro, 10 miles.

This is a total of 44½ miles of new railroad, making 1,077 miles reported to date for the current year. The total track reported laid to the corresponding date for 12 years past is as follows:

	Miles.		Miles.
1884.....	1,077	1878.....	482
1883.....	1,900	1877.....	595
1882.....	3,965	1876.....	636
1881.....	1,872	1875.....	336
1880.....	1,768	1874.....	603
1879.....	732	1873.....	1,387

These statements include *main track only*, no account being taken of second tracks or other additional tracks or sidings.

#### Inventions Exhibited at the Master Car-Builders' Convention at Saratoga.

Several inventions relating to freight and passenger car work were exhibited in the piazza of Congress Hall, the hotel in which the Convention was held. Among them was a working model of a three-truck freight car, the invention of Mr. L. Finlay. Several cars built on this plan are running on the Hot Springs Railroad, Ark., and the model traversed a sharp reverse curve with remarkable ease.

Mr. E. B. Meatyard, of Lake Geneva, Wis., exhibited a model of the Acme car, the design of which is somewhat peculiar. The framing is composed of various sections of rolled iron, the axles are hollow, have inside bearings, and by a system of rods and links are made to radiate to the curve on which the car may be running. The wheels are provided with dish steel plates, pierced with holes in lieu of spokes.

A model of the Widdifield & Button automatic freight brake, which is actuated by the compression of the drawing-spring, was exhibited and is stated to be in use in actual freight service. These gentlemen claim that they have discovered a method by which friction-power for chain brakes can be rendered tame and harmless, thoroughly domesticated and obedient to the word of command. If this is so, we would strongly advise the inventors to apply to the London & Northwestern Railway Co. of England, which, after spending an immense amount of money, and trying all manner of devices on its enormous passenger equipment of over 6,000 cars, has been forced to give up the chain and friction principle as totally unsuitable for a continuous brake on a train of more than five cars.

The Ormsby Sash Holder Co., of Boston, Mass., exhibited a full-sized model of its improved method of balancing the weight of car windows in any position. The edge of the sash is fitted with a beveled rack into which is geared a wheel fitted to the window post. A spiral spring contained in the wheel tends to make it revolve and lift the window and rack.

Two models were exhibited of King's non-swiveling two-wheel car truck, which is designed to give an equal distribution of load to a four-wheel car when passing over a rough road. This is effected by means of bolsters which virtually carry the weight of the car on the centre, light springs in order to check undue rolling being substituted for side bearings. As the wheel-base is necessarily short, not exceeding that of a six-wheel passenger car truck, the axles do not radiate. A large number of these cars are running on the Delaware & Hudson Canal Co.'s railroad, and though somewhat heavier and more complicated in the construction than an ordinary four-wheel car, are doubtless less liable to leave the track when running over a rough road.

The National Railway and Street Car Co. exhibited a car axle box, provided with an arrangement for removing or inspecting the dust-guard without using a jack or disturbing the rest of the box. The dust-guard is made in two halves with a vertical joint, and each half can be removed from the side of the box, slots for that purpose being provided, instead of the usual aperture at the top of the box. Each half of the dust-guard is carried in a frame, preferably made of cast iron, and having some vertical motion in the box, so as to allow for the wear of the brass and journal. The dust-guard frames are secured in position by two spring catches. This form of box has been used on the Concord Railroad, and by the Burton Stock Car Co., etc.

M. E. Mignault, New York, exhibited some of his patent



universal angular knuckle joints for pipes. The joints are especially applicable for the conveyance of air, gas, steam or hot water under pressure, and have been used between the cars on the Manhattan Elevated Railroad for steam-heating purposes. Metal pipes of peculiar form are used, the joints and glands being packed with asbestos. These joints are designed to take the place of rubber hose, which, though very flexible and convenient of application, are soon rendered useless by grease or oil, heat, or the chafing of a safety chain. Mr. Mignault's invention would appear to supply a want which has been long felt.

The Standard Lighting Co., of Cleveland, O., exhibited a new portable coal-oil railroad light, which appears to possess considerable illuminating power, and is suitable for use at wrecks, etc. The lamp contains a reservoir for compressed air, the requisite pressure being attained by some 50 strokes of a small hand plunger. A jet of oil and a jet of compressed air being mingled at the burner by means of suitable pipes, several vivid flames are produced, affording an excellent light without the use of wick or chimney.

The Mann Boudoir Car Co. exhibited a fine sleeping car, "Il Trovatore," at the Delaware & Hudson Canal Co.'s passenger station at Saratoga. This fine car attracted much attention, and we hope shortly to publish an account of some of its numerous ingenious contrivances to promote the comfort of travelers.

The New York, Lake Erie & Western exhibited a car fitted with the Pintsch system of lighting. This light is so well known and has proved itself so well adapted for practical railroad use, especially in Germany and Great Britain, that any extended description is needless.

Several of the best known forms of car couplers were shown on freight cars, and some experiments were carried out on these cars under the direction of Mr. Blackall in the Delaware & Hudson Canal Co.'s yard at Saratoga. The cars fitted with the couplings were run together at considerable speed (8 to 12 miles an hour) on a sharp curve, and the automatic feature of the couplings was thus subjected to a severe test, most of the cars failing to couple. Whether such a test is of any practical value in determining the merits of a car coupling is an open question.

Messrs. S. H. Moore, of Chicago, Ill., exhibited a freight car fitted with an improved form of spark-tight door. The door rests on tapered slides which jam it fast against the sides of the car. The door is moved by means of a lever handle, which throws the weight of the door upon rollers, and, lifting the door bodily, withdraws the wedges from contact. The door being thus loose, and running on rollers, moves with great ease. We understand this door is in extensive use on Western roads.

#### Transportation in Congress.

In the House on June 14th:

An amendment to the Post Office Appropriation bill was adopted, making a special appropriation of \$250,000 for fast mails over the principal railroad lines.

In the Senate on the 17th:

Mr. Slater (Oregon) reported from the Committee on Public Lands a substitute for the House bill to declare the forfeiture of the unearned land grant made by act of May, 1870, to aid in the construction of a railroad and telegraph line from Portland, Ore., to Astoria and McMinville in the same state. The substitute provides that so much of the lands granted by that act as are adjacent to and coterminous with the uncompleted portions of the railroad be declared forfeited to the United States and restored to the public domain, and that they be made subject to disposal under the general land laws of the United States.

In the House on the 17th:

The House took up the bill reported from the Committee on Pacific Railroads to amend the several Pacific Railroad acts. It requires the companies to file within 90 days from the passage of this act (or within 60 days after the completion of the surveys) lists of selections of the land claimed by them and to deposit the cost of surveying, selecting and conveying the same. After considerable discussion Mr. Payson's substitute for the bill and amendments was adopted. It provides that if the railroad companies shall not, within 60 days from receipt of the notice, pay the costs then their right shall cease as to the land within such township and the lands shall be restored to the public domain for settlement under the homestead laws. The bill was then passed.

#### TECHNICAL.

##### Locomotive Building.

Work is being prosecuted on the buildings of the new McQueen Locomotive Works in Schenectady, N. Y., and it is thought that the machinery can be put in this fall and work begun early next year.

The Montgomery Iron Works, in Montgomery, Ala., have recently built several locomotives for use on logging roads. They are built on a plan designed by W. E. Cole, of Montgomery, and are intended to run on wooden tracks.

The Rhode Island Locomotive Works in Providence have started up on full time, having taken a large order for locomotives.

##### Car Notes.

The Wason Manufacturing Co., at Brightwood, (Springfield) Mass., last week shipped 8 open excursion cars and two parlor cars to the New York & Sea Beach road.

The Western and Atlantic shops in Atlanta, Ga., last week turned out a new postal car for the road.

Mr. E. V. Schermerhorn, Receiver of the Jones Car Manufacturing Co. in Schenectady, N. Y., has issued a circular in which he states that at the time he was appointed to the receivership the liabilities of the company were \$320,705, and its assets \$222,250. Since he has had charge the Receiver has somewhat reduced the debts of the company. He is carrying out the contracts on hand and expects to keep the present force at work until August.

##### Bridge Notes.

The Delaware Bridge Co. recently completed a double-track iron draw-span 257 ft. long over the Hackensack River in New Jersey, for the Pennsylvania Railroad.

The Massillon Bridge Co., in Massillon, O., has a contract for an iron highway bridge over Black Creek in Bergen, N. Y. It is to be 106 ft. span and 16 ft. wide.

#### Iron Notes.

Emma Furnace, near Lewistown, Pa., belonging to the Logan Iron & Steel Co., has gone out of blast for repairs.

The Reading Iron Works have started up their rolling mill in Reading, Pa., which has been idle for several weeks. The pipe mill has also been started.

During the month of May the Pennsylvania Steel Co. produced 9,834 tons of steel rails, 13,249 tons of Bessemer ingots, 1,862 tons of open-hearth steel, 13,095 tons of bloom and 13,168 tons of pig iron. There are now four blast furnaces in full operation.

It is stated that the machinery of the rolling mills at Mount Hickory, Pa., will be removed to Erie.

The Lackawanna Iron & Steel Co. has been organized at Scranton, Pa. This is a new corporation which succeeds the Lackawanna Iron & Coal Co. in the ownership and management of the blast furnaces and Bessemer steel works at Scranton and the iron ore and coal interests there and elsewhere. The stockholders and officers of the new corporation are the same as those of the old one.

#### Manufacturing Notes.

The Pond Engineering Co. in St. Louis has taken a contract to build two pumping engines for the new water-works at Victoria, Tex. The engines will be of the Blake improved compound duplex pattern, and will have a capacity of 1,500,000 gallons a day.

The Passaic Machine Works of Wat's, Campbell & Co. in Newark, N. J., are filling several orders for stationary engines and heavy machine tools.

#### The Rail Market.

Steel Rails.—Quotations continue about \$32@32.50 per ton at mill, and a considerable business has been done in small orders. The market is weaker and large cash orders could undoubtedly be placed at less than \$32, as for some time past railmen have been unwilling to accept orders unless for cash or first class security.

Rail Fastenings.—Quotations continue unchanged at \$2.25 per 100 lbs. for spikes at Pittsburgh and \$2.50@2.75 for track bolts. Splice-bars are quoted at \$1.70@1.80 per lb. The demand continues light and prices are weak.

Old Rails.—Very few sales of old rails are reported, and none of any size. The market is nominal at \$20@21 per ton at tidewater.

#### Irish Sleeping-Cars.

The Engineer says that the 5 ft. 3 in. gauge of the Great Southern & Western Company of Ireland has enabled it to build some capital first-class carriages, with lavatory accommodation and seats convertible into beds, for its night mail trains between Dublin and Cork. The convertible seats occupy about three-fourths of the width of the whole compartment, and when turned completely over disclose a soft wollen mattress and pillow, and a comfortable rug. As the journey is made in 5½ hours, the need of a sleeping-car is not so pressing as on a longer run.

#### Locomotive Boiler Explosion.

An official Board of Trade Report has been published on the explosion of the outer shell of the fire-box of a pilot engine at Exeter station, on the Great Western Railway, England, Feb. 13. In concluding it Major Marindin says: "It is seldom that so accurate a description of the manner in which a boiler exploded can be given as in this case, where the leading fliter and the driver actually saw the exact spot where the plate first commenced to give way. This spot was at the joint of the top plate and the left-hand side plate of the fire-box shell, and at a point about 18 in. from the back of the box. An examination of the boiler shows that at this point, and more or less all along the joint, there was an old flaw on the inside face of the butt-strip extending at some places through nearly a third of the thickness of the metal, and it is evident that the explosion was due to the weakness of this joint. The butt-strip at the corresponding joint on the other side is also flawed in a similar manner. This form of joint is a bad one, as where there is only one butt-strip an unequal strain is thrown on the two sides of the metal, and any small flaw is very liable to develop to a dangerous extent. The metal of the boiler-plate itself was in good condition. There are in all 18 engines belonging to the company with similar joints, the whole of them having been built between 1870 and 1875. The joints in these are being strengthened by removing the outside  $\frac{3}{16}$  in. butt-strips and fitting instead two  $\frac{1}{16}$  in. strips."

#### Watering Stock.

On the shore of the lake along side the Lake Shore track at a point near Waverly avenue, a queer-looking device looms up. It is an upright standard with two arms like stove-pipes extending toward the track. The ends of these pipes are flattened out to throw a wide sheet of water. A heavy stock train, drawn by a double-header, stopped along side this standard yesterday, and a brakeman climbed down from the train, and, by pulling a lever at the foot of the standard, sent a sheet of water gushing in on the carloads of hogs as the train slowly moved on. Thus all the swine were given a shower-bath, after which the train sped on Buffalo ward. Several carloads of cattle in the same train evidently evaded the hogs, but cattle are never given railroad shower-baths. About 46 hours are consumed in the trip of a stock train from Chicago to Buffalo. The law provides that stock cannot be kept on the road more than 24 or 36 hours without water and feed, but the railroads get around the law by means of these standards, which give the hogs a little water externally and what they can sip from the filthy floor of the cars. There are a dozen of these watering devices between Chicago and Buffalo.—Cleveland Herald.

#### The Car Seal Contract.

The contract for furnishing car seals for freight cars for custom-house purposes, with the necessary appurtenances, has been awarded by the Treasury Department to E. J. Brooks & Co., of New York, for another year. They have now held this contract for several years.

#### A Car for Live Poultry.

A new thing in the way of railroad rolling stock is the result of the inventive genius for which Muncie, Ind., is becoming known in the Patent Office Department. The new wrinkle is a live poultry car, so designed and constructed as to enable the shipping of live fowls any distance by rail without any of the drawbacks attending the handling of crates and baskets as now shipped. A description of the car will not fail to interest not only every railroad man but every shipper of live poultry. The car is not unlike a stock car in general appearance, having four or five decks or floors far enough apart to accommodate standing poultry. Each deck may be separated by portable partitions into compartments or the length of the car may be thrown together.

Each compartment is provided with a main door, which locks as hereafter described, and each door has a sliding door, which locks independently, for use in transfer. A simple contrivance of rods and staples locks with a lever crank every door at once, and a storm-curtain protects the fowls in bad weather. A feed and water trough, which holds food and water for a trip to the seaboard and will not

allow the latter to splash out, tops off the completeness of the invention, for which a patent has been applied.

The invention is the product of the brain of Traveling Freight Agent Wm. P. Jenkins, of Lake Erie & Western road, assisted by James L. Streator, an extensive poultry dealer and shipper of Muncie.—Detroit Post and Tribune.

#### Pneumatic Train Signals.

For the past week Mr. L. C. Huber, of Huber, Ky., has been engaged in putting on the Pittsburgh, Cincinnati & St. Louis road his pneumatic signal. The signal is an air whistle placed upon the caboose or last car of a freight train. It consists of an eccentric placed upon the axle of the car. The revolution of the axle while the car is in motion is the motive power for the eccentric, which is connected to and operates an air pump. From the pump air is forced into and compressed in an air drum until a pressure of 90 or 100 pounds to the square inch is obtained. Leading out of the air drum is a whistle pipe terminating above the roof of the caboose in a whistle, which is operated either from the inside or on top of the caboose.

The object of this method of signaling by sound is to at all times and in any condition of weather put the train employees in instantaneous communication with one another, which has not been accomplished by any other system, and especially is the present method defective, being by signs, the efficacy of which depends wholly upon whether the person for whom the signal is intended is looking in the direction of the signal being given. Mr. Huber has overcome this defect by controlling the men by sound, and the advantage of his system is that any man on the train who can hear is instantly controlled by the whistle. A test was given on the Little Miami road yesterday, and it proved satisfactory. The run made was, however, one of but a few miles, but to-day a test will be made between here and Columbus.—Cincinnati Enquirer.

#### An Old Virginia Furnace.

A communication recently made to the *Chronicle*, a paper published at Charlottesville, Albemarle County, Va., contains some interesting information concerning one of the blast furnaces that were built and in operation in that state before the Revolution. The furnace referred to is briefly mentioned in Jefferson's "Notes on the State of Virginia," as being located in the County of Albemarle, and its owner's name is given as one Old. The communication in the *Chronicle* says that in 1777 this furnace was then referred to as an "old furnace" that was "yet standing, tho' somewhat out of repair," but that it was proposed in the Virginia House of Burgesses to put it in blast, to aid by its product in accomplishing the independence of the colonies. This proposition took the form of a resolution appropriating a loan of \$2,000 to one of the proprietors, whose share in the furnace was heavily mortgaged, to enable him to co-operate with his partners in putting the furnace in blast. The furnace was then said to have been owned by Messrs. Old, Wilkinson & Trent, and Wilkinson was the partner to be benefited by the loan from the Virginia Treasury. The furnace appears to have been promptly put in blast, as Jefferson, whose "Notes" were written in 1781 and 1782, says that the mines belonging to this furnace were then "worked." The name of the furnace is not given, but Jefferson says that the mines belonging to it were on the north side of the James River, in Albemarle County.

#### A Fatal Accident.

On the morning of June 14 an excursion train on the Camden & Atlantic road met the regular passenger train on a curve near Haddonfield, N. J. At the point at which the accident took place the road is bounded on one side by a dense growth of timber which prevents the engineer from seeing the track for more than 150 yards ahead. Both trains were running at a considerable speed and the wreck was complete, both locomotives being almost entirely destroyed, while both baggage cars and two passenger coaches were piled up on top of them in a terrible wreck. Six of the trainmen, including both engineers, and two passengers were killed at once, one of the passengers being the Civil Engineer of the road. Three trainmen and five passengers were seriously hurt and a number of others were slightly bruised and scratched. The cause of the accident is said to be the failure of the engineer of the regular train to stop at the preceding station, Ashland, where he had received orders to await the excursion train. Why he did not stop is, of course, unknown, as he was killed, but the conductor states that he received the orders and was positive that the engineer understood them. This is the first of the crop of accidents which usually follow the opening of the excursion season, and it is to be hoped that it will remain the most fatal.

#### Improvement in Road Crossings.

The Erie is doing a very fine and much needed job in laying a wide, new plank crossing over their tracks at Pike street. Road-master Bartlett suggested an improvement which will be appreciated by all owners of horses. Instead of having a deep gulley between the rail and the plank, he has caused a rail to be laid on its side, one of the thin flanges being about on a height with the rail, and the space being filled almost to the surface with a piece of hard wood. The narrow piece of the inverted rail forms a sure foothold for a horse should it chance to slip in wet or slippery weather, while it is impossible for the hoof of a horse to be caught between the rail and the platform. The new idea has only to be seen to be appreciated.—Port Jervis (N. Y.) Gazette.

#### Blast Furnaces of the United States.

The *Iron Age* publishes, as supplementary to its quarterly statement, a table giving a statement of the condition of the anthracite and bituminous furnaces of the United States on June 1. From it the following figures are taken:

	In blast		Out of blast	
	No.	Weekly capacity.	No.	Weekly capacity.
Anthracite .....	106	27,972	124	27,305
Bituminous and coke .....	91	45,312	121	40,821
Total .....	197	73,284	245	68,126

As compared with the quarterly statement on April 1, this shows a reduction of one in the number of anthracite furnaces in blast, but an increase of 360 tons in the weekly output reported; in bituminous furnaces a reduction of four in the number, and of 1,633 tons in the weekly output. The totals show five furnaces less in blast than on June 1, making a decrease of 1,473 tons in the average weekly production of iron.

#### Railroads in the Argentine Republic.

Mr. J. W. Akeroyd, one of the oldest employes of the Central Argentine road, but just now in Mexico, gives the following description of the railroads of the Argentine Republic in South America:

The railroads in operation are in number, as follows: Central Argentine, from Rosario to Cordoba, 398 kilo-



metres. Manager, A. Fisher. Employés, English (by which is meant Americans and Englishmen) and natives.

*Andine*, from Villa María to Mendoza. Manager, Mr. Villanueva. Employés, German, French and natives. 503 kilometres.

*North Central* (narrow-gauge) from Cordoba to Tucuman. Manager, A. Martín. Employés: mostly natives. 560 kilometres.

*East Argentine*, from Concordia to Caseras. Manager, a native. Employés, native. 150 kilometres.

*First Entre-Rio*, from Gualazuz to Puerto Ruiz. Manager, a native. Employés, native. 10 kilometres.

*Northern*, from Buenos Ayres to Tigra. Manager, Mr. Crabtree. Employés, English and natives. 32 kilometres.

*Buenos Ayres & Campana*. Manager, a native. Employés, natives. 65 kilometres.

*Western*, from Buenos Ayres to Lobos. Manager, a native. Employés, natives. 240 kilometres.

*Great Southern*, from Buenos Ayres to Azul. Manager, Geo. Cooper. Employés, English and natives. 410 kilometres.

*Buenos Ayres & Ensenada*. Manager, Arthur Shaw. Employés, English and natives. 63 kilometres.

The railroads projected and under construction are eight in number, described as follows:

*Trans-Andine*. Contractor Clark, kilometres, 1,280. From Buenos Ayres to Chili, via Mendoza, to cost \$30,000,000 gold. This road has guarantees and subventions from the Argentine and Chilean governments. Its construction will enable the trip from Mendoza to Valparaiso on the Pacific to be made in 48 hours, crossing the Andes at Uspallata Pass, through a tunnel 3 kilometres in length.

*Buenos Ayres & Rosario*. Kilometres, 296. Grantee, Mr. Billingham. Construction on this road has not yet commenced.

*Parana to Concepcion*. Kilometres, 248. This road will cross the Province of Entre Rios from the Parana River to the Uruguay.

*Tucuman to Jujuy and Salto*. Kilometres, 380. This road will cost \$10,000,000 and is building by the government.

*Rosario to Candelaria*. Kilometres, 50. Contractor, Mr. Casados.

*Azul to Bahia Blanca*. Kilometres, 340. Contractors, Hume Brothers. Estimated cost, \$7,000,000. Now constructing.

*Corrientes to Mercedes*. Kilometres, 224. Work not commenced. To cost \$6,500,000.

*Concordia to Gualaquachu*. Kilometres, 160. Work going on. Road to cost \$4,000,000.

The most important of these lines in construction are the *Andine*, from Mendoza to San Juan and the extensions from Tucuman to Jujuy and Salto, and the *Western & Southern* of Buenos Ayres.

Engine drivers are paid \$100 gold per month. Mechanics and fitters \$3.50 per day. Many of the lines are owned and building by the government under direction of the Bureau of National Engineers, mostly natives and Italians. Those not built by the government are chiefly or entirely owned in England. Most of the equipment in use, we believe, is English, but some orders for locomotives and cars have recently been placed in this country.

#### Riding on the Platform.

The Massachusetts Railroad Commissioners have made the following report of their investigation of a recent accident: "Report on the death of Frank Hayes: On the evening of May 31, Mr. Hayes, who was riding, according to his custom, on the platform of a Boston & Albany Railroad car, fell from it at the Providence crossing, and died from the effects of a wound on the head. No special cause of the accident is known. This sad death seems to give a fit occasion for calling the attention of all railroad managers in the state to the too general practice of allowing passengers to occupy a dangerous position on the platforms of steam cars. It is true that an iron plate on each car gives notice that this is not allowed. But it is equally true that, while intoxicated persons and young persons are warned away and prevented from remaining, other passengers are habitually allowed to ride in places which are declared by this very notice to be dangerous. Regulations forbidding this practice would, if enforced, save many casualties. We are aware that such rules would cause some discontent. Few personal rights are more tenaciously cherished than the supposed rights of risking limb and life by walking on railroad tracks or by riding on car platforms. One practice is forbidden by law, the other should be prevented by regulation. For it has often been held that it is not only the right, but the duty of common carriers to make and enforce all such rules as are necessary for the safety of their passengers. Numerous cases of accident and death show that the enforcement of this rule is necessary."

#### THE SCRAP HEAP.

##### He Knew Where She Was Going.

"Tickets, please," said the conductor, as the train pulled out of the Grand Central station last night. "Ah, owing to my delayed appearance at the depot," said a young lady passenger, "caused by a most unfortunate chain of circumstances, quite unnecessary to particularize, I found it impossible to purchase a ticket in time to catch the train. Would it be conformable with the rules of the company, sir, if I were to tender my fare to you?" "Not—not entirely," gasped the frightened conductor. "But—in this case I will make it so. You fare to Boston, Madame, is \$5."—*New York Sun*.

##### It was Not a Train-robber.

An incident which occurred a day or two since is worth relating, as it may serve as a caution to messengers who are apt to place too much confidence in the integrity of blunderbusses and thugs. Names need not be mentioned; but it may be said that the affair occurred in a B. & M. express car within a half day's ride of Denver. The car was full of overflowing with merchandise, crates of poultry, cases of eggs, and the usual hotchpotch mass of freight found in a Western express car. Ensnared among these, and supposed to be quite comfortably nestled in its own quiet corner, was one of the formidable blunderbusses, pregnant with buckshot, kept in the vehicle for the benefit of gentlemen of the Younger and James stripe. The train was between stations, and the messenger was getting deliveries ready for the next stopping point, when all at once there was a fearful explosion, the car was full of smoke and chicken screams and a messenger with blanched features and trembling knees looked inquiringly about, wondering from which quarter the next shot was coming, and if all the train-robbers on God's green footstool had broken loose from boxes in the car and were bent on his annihilation. While cogitating on the uncertainty of human events, the smoke cleared sufficiently to enable him to discern his trusty blunderbuss lying across the car, breathing blue curls of sulphurous smoke from its iron mouth, but otherwise quite composed.

The weapon had accidentally been shifted from its reclining

position against the inside of the car, and the jolting of the vehicle caused it to take a sudden tumble and demonstrate in the fall how savage a kick it could make in its discomfiture.

The scared messenger then felt himself all over to see if he were whole, and if his new spring suit had been spoiled by perforations. Having satisfied himself in the negative on this score, he inspected his freight, and discovered that prematurely hatching a hundred or two eggs in one of the cases was the only damage that had been done. He says he will chain the pesky thing up in future, or at least fix it so it won't have an opportunity to scare him out of his wits and make him say a prayer before bed-time.—*Denver Correspondence Express-Gazette*.

#### Fine Print on the Cars.

The efforts of a train-boy to sell Remus a fine-print book the other day, suggested the thought that people who make books to sell aboard the cars might score a point in the way of an increased sale if they would pay more attention to the size of type they use and stop asking travelers to ruin their eyes by trying to read fine print. There is something inviting about a book printed in large type—especially to a traveler who is a reading person and is anxious for something to while away the time. But a fine-print book has nothing restful in its appearance. It tires one just to glance at it; and although a few foolish individuals risk their eyesight on this sort of literature, the majority of travelers would prefer the other more readable kind.—*St. Albans (Vt.) Messenger*.

#### The Brakeman's Fun.

"I wish I was as rich as Vanderbilt," said a brakeman as he smothered an orange from the train-boy and proceeded to pay for it in talk. "If I had that old duffer's money I'd have some rare sport, I tell you."

"What would you do?" inquired the train-boy as he removed the oranges from the brakeman's reach.

"Well, I'd take a piece of railroad where two down grades meet; then at the bottom of the two hills I'd put up a big grand stand, and have lemonade and beer, and lunch counters, and all that sort of thing. Then I'd invite all my friends to come there, and when they'd all got comfortably fixed I'd show 'em some sport as was sport. I'd put one locomotive at the top of the grade, two or three miles back, and the other on the other side, the same distance away, and then I'd have 'em both started with full steam and wide open valve at the same time."

"You would want a double track, of course," said the train boy, "your idea being to see which would pass the grand stand first, and so make a race of it."

"Double track fiddlesticks!" exclaimed the brakeman. "One track, you simpleton. Don't you see the engines would run together right there in front of the people, and that collision would be one of the most magnificent spectacles ever witnessed by the human eye? But don't give it away, 'cause I'm going to copyright the idea and play it on shares with Barnum next year. The country'll go wild over it. We'll have cheap locomotives made for our especial use, of course, and carry our own track with us. Then we'll put an engineer on each engine, and they'll do the grand jump act just before the collision, having something soft to light on, of course. Oh, there's millions in it, cully. Lend me a dollar to buy postage stamps to write to Barnum with, and I'll make you a present of the lemonade privileges first season."—*Chicago Herald*.

#### Going Mighty Fast.

We were going west on the Great Western Division of the Grand Trunk, and the night was chilly for the latter end of May.

"Hi! porter," said the commercial man in the bunk overhead, "can't you give us another blanket? It's deuced cool to-night."

"Ain't got another blanket, boss."

"Well, just see what you can do for a fellow," said the c. m., putting his hand out through the curtains with a quarter in it.

"Dunno, boss, but I'll do what I can."

There was scarcely a perceptible pause in the porter's measured tread as he passed our section 15 minutes later, but the curtains parted and a blanket went through the opening as if it had been shot out of a cannon.

"Thought I felt somebody carrying off part of my bed clothes last night," said a passenger in the further end of the car as he worked himself into his boots in the morning.

"Dunno, boss; went mighty fast last night, making up time; probably run from under 'um."—*Detroit Free Press*.

#### For Railroad Restaurants.

It is a relief to turn from the dazzling glare of the political landscape and contemplate the springing up in the West of a true gastronomic reform. California has organized an anti-pie society. From the Pacific Coast is sounded the battle note of an army of sanitarians. Many of them doubtless recall a kind father or tender mother long since banished from this world by an overdose of mince pie. Some may have wandered over the granite hills of New England and wept over its feeble inhabitants, the victims of the pie habit, and others probably have shuddered as they saw on the restaurant signs of our great cities the advertisements of custard, apple, Washington, Marlboro and rhubarb pies. The word pie has long been known to be an abbreviation for pizen (archaic: poison), and the reformers strike at the root of the evil by petitioning the state legislature for a law that will prohibit the manufacture and sale of pie as "an indigestible article of food, detrimental alike to health and morals."—*Boston Advertiser*.

#### A Singular Accident.

Passenger train No. 160 left the Erie Railroad depot at Newburg at 2:35 on Sunday afternoon for Greycourt. The train was drawn by engine No. 201, which was in charge of engineer Albert Johnson, his son Charles Johnson being fireman. When the train had finally reached a point about 1½ miles from the station, just above the tracks of the Pennsylvania Coal Co., the fireman stepped down from the cab to the tank, and was in the act of opening the furnace door, preparatory to shoveling in coal. Without any warning the door burst open, and a large sheet of flame shot out of the opening. This was caused by cinders clogging up the smoke stack. The fireman stepped to the side of the tank as quickly as possible, but not until the flames had burned his hands and arms, and singed his face somewhat. He grasped the handle of the cab, intending to get as far as possible away from the flames. In doing so he was precipitated to the ground. Strange as it may appear, Mr. Johnson was not injured by the fall. In the meantime the engineer endeavored to close the furnace doors. In the effort his hands were burned, one of his boots was burned, and his overalls caught fire. When he succeeded in stopping the train the flames became subdued. The fireman was taken aboard the train and left at Dickinson's switch, where he boarded a switch engine and was brought back to Newburg, his home, and a doctor called. The patient is doing well, and no serious results are expected.

pected. His escape from death was remarkable, not alone on account of the danger he encountered from the flames, but in falling from the engine. Engineer Johnson pluckily stuck to his engine and ran the train safely to Greycourt, returning to Newburg in the evening. The woodwork of the cab, both of the exterior and interior, was burned to some extent.—*Port Jervis (N. Y.) Gazette*, June 17.

## General Railroad News.

### MEETINGS AND ANNOUNCEMENTS.

#### Meetings.

Meetings will be held as follows:  
*Chicago & Northwestern*, special meeting, at the office in Chicago, June 26.

*Louisville, New Orleans & Texas*, special meeting, in New Orleans, July 22, to complete the consolidation of the several companies making up the line.

*Vicksburg & Meridian*, adjourned annual meeting, at the office in New York, July 16, at noon.

#### Dividends.

Dividends have been declared as follows:

*Albany & Susquehanna* (leased to Delaware & Hudson Canal Co.), 3½ per cent., semi-annual, payable July 1.

*Boston & Lowell*, 2½ per cent., semi-annual, payable July 1, to stockholders of record on June 14.

*Chicago, St. Paul, Minneapolis & Omaha*, 1½ per cent., quarterly, on the preferred stock, payable July 21. Transfer books close June 30.

*Connecticut River*, 4 per cent., semi-annual, payable July 1, to stockholders of record June 16.

*Fitchburg*, 2½ per cent., semi-annual, payable July 1 to stockholders of record on June 16. This company drops from 3 to 2½ per cent.

*Morris & Essex* (leased to Delaware, Lackawanna & Western), 3½ per cent., semi-annual, payable July 1.

*New York, Lackawanna & Western* (leased to Delaware, Lackawanna & Western), 1½ per cent., quarterly, payable July 1.

*New York, New Haven & Hartford*, 5 per cent., semi-annual, payable July 1.

*Northern Central*, 4 per cent., semi-annual, payable July 15 to stockholders of record on June 30.

*Rensselaer & Saratoga* (leased to Delaware & Hudson Canal Co.), 4 per cent., semi-annual, payable July 1.

*Rock Island & Peoria*, 2½ per cent., semi-annual, declared June 11.

*Staten Island*, 1 per cent., payable June 25. Transfer books close June 20.

### Railroad and Technical Conventions.

Meetings and conventions of railroad associations and technical societies will be held as follows:

*General Baggage Agents' Association*, semi-annual meeting, in Boston, on Wednesday, July 16.

*Traveling Passenger Agents' Association*, annual meeting, in Denver, Col., on Tuesday, Aug. 12.

*Western Association of General Passenger & Ticket Agents*, adjourned meeting, in Minneapolis, Minn., on Wednesday, Aug. 13.

*Train Dispatchers' Association*, preliminary meeting, to form an association, in Louisville, Ky., on Wednesday, Aug. 20.

*Master Car-Painters' Association*, annual convention, in Boston, on Wednesday, Sept. 3.

*Road-Masters' Association of America*, annual convention, in Indianapolis, Ind., on Wednesday, Sept. 10.

*Association of American Railroad Superintendents*, semi-annual meeting, in Boston, on Tuesday, Sept. 16.

*National Association of General Passenger & Ticket Agents*, semi-annual convention, in Boston, on Tuesday, Sept. 16.

*New England Railroad Club*, first monthly meeting for the season, at the rooms in the Boston & Albany station in Boston, on Wednesday, Sept. 24.

*New England Road-Masters' Association*, annual convention, at White River Junction, Vt., on Wednesday, Oct. 8.

*General Time Convention*, fall meeting, at the Continental Hotel, Philadelphia, on Thursday, Oct. 9.

*Southern Time Convention*, fall meeting, at No. 46 Bond street, New York, on Wednesday, Oct. 15.

*American Street Railway Association*, annual convention, in New York, on Wednesday, Oct. 15.

### Railway Employees' Mutual Benefit Association.

The fourteenth annual meeting of the Railway Employees Mutual Benefit Association was held in Chicago, June 12. In the absence of the President Mr. John Dunn occupied the chair. The Treasurer's report showed a balance on hand June 1, 1883, of \$642. Collections during the year amounted to \$13,651, making the total receipts \$14,293. The losses paid amounted to \$14,171, leaving a balance of \$122 on hand. The usual routine business was transacted and a special committee was appointed to examine into the affairs of the Association with a view of extending its future usefulness.

### Baltimore & Ohio Employees' Relief Association.

The May sheet of this Association shows the payment of 965 benefits to members during the month, as follows: Main Stem, Transportation Department, 113; Machinery Department, 252; Road Department, 135; Baltimore & Philadelphia, 3; Pittsburgh Division, 86; Trans-Ohio divisions, 184; physicians' bills, 192; total, 965. The largest single payment during the month was one of \$1,000 to the sister and heiress of Frank Houck, brakeman, accidentally killed.

### Train Dispatchers' Association.

A large meeting of train dispatchers was held in Louisville June 15, to make preliminary arrangements for the convention which has been called to meet in that city on Aug. 20 next. Committees were appointed on reception and entertainment, and resolutions were adopted inviting all train dispatchers to attend the convention, and requesting the proper officials to furnish transportation to those who desire to attend. Mr. W. M. Marshall, of Louisville, is Chairman of the Local Committee, and will answer all inquiries in regard to the convention.

### Yard-Masters' Mutual Benevolent Association.

The Yard-masters' Mutual Benevolent Association met in Atlanta, Ga., June 11, about 80 delegates being present. The meeting was opened by an address of welcome by Mr. Albert Wrenn, of the Western & Atlantic road, to which President Cameron, of the Association, responded in an appropriate manner. Several other addresses were made and several invitations to visit points of interest in the neighborhood of Atlanta were received. The first business in order was the selection of a place for the next convention, and Philadelphia was chosen. The afternoon was devoted



to the consideration of the report of the Executive Committee, which was discussed with closed doors.

On the following day the reports of the other standing committees were received and disposed of, and several amendments were adopted to the constitution and by-laws. Officers were elected for the ensuing year, and other routine business disposed of, and then the convention adjourned. The delegates received many pleasant attentions from the citizens of Atlanta during the continuance of the convention.

#### Engineers' Club of Philadelphia.

The regular monthly meeting of this Club was held in Philadelphia, June 7, President William Ludlow in the chair, 27 members and 3 visitors present.

The President announced, in relation to the question of new and enlarged quarters for the Club, that a house could be obtained in the fall, in Girard street, and requested the members to be prepared to discuss and act upon the subject at the next meeting.

Mr. William H. Ridgway described a simple crane, consisting of a cylinder hung from the jibs of an ordinary foundry crane and using the steam directly to hoist the load; and also an elevator, in which water, receiving pressure from the direct application of steam acting upon a piston carrying a rack, gave motion to a shaft carrying a pinion and drum wheel.

Mr. C. Henry Roney exhibited specimens of "American Sectional Electric Underground Conduits" as laid in Philadelphia, describing the method of their construction in detail, the difficulties encountered in avoiding the present underground works, the manner of introducing and arranging the wires, and the behavior of the electric currents therein.

Prof. L. M. Haupt supplemented his paper of May 17, upon "Rapid Transit," by an interesting collection of statistics of the growth of the city from the time of the "pack-horse" to the present, and showed, by maps, that his previous statements were verified by these statistics.

Mr. A. E. Lehman exhibited to the Club a model of a new protractor, and described the invention and the improvements he has made in it. It consists of a combination of protractor, T-square, scales, etc., which may be worked separately or together. As a protractor only, it is complete, being graduated to degrees and fractions thereof and provided with a vernier reading to three minutes. It can be used, like an ordinary paper or ivory protractor, for hasty plotting, and combines triangles and scales in one instrument. For careful and precise work it is said to be equal to the best special instrument and to be no higher in price.

Mr. E. V. d'Inville read a paper on "Some Characteristics and the Mode of Occurrence of the Brown Hematite (Limonite) Ores in Central Penna.," taking for his field of illustration the Lower Silurian limestone valleys of Centre County.

Prof. L. M. Haupt called the attention of the Club to a bill pending in Congress to consolidate the U. S. Coast and Geodetic Survey with the Navy Department.

Captain S. C. McCorkle, of the Coast Survey, who was present, explained the effect that its passage would have upon the future of the work, and President Ludlow gave, from his own experience and knowledge, the reasons why this change was contemplated. The Secretary read his correspondence with Hon. S. J. Randall upon the subject, and expressed what he believes to be the unanimous sentiment of the civil engineering profession of the country, against any interference with a survey, the perfection of whose results is proverbial, and against any increase of the already unwise and unjust discrimination of the government against thoroughly competent civil engineers, and in favor of a class who often (but with notable exceptions) have comparatively little ability, and whose only claim is that the government has attempted to educate them and must, therefore, seem to provide them with something to do.

As no action could be taken until the next business meeting, the Chair appointed Prof. L. M. Haupt, Mr. Rudolph Hering and the Secretary a committee to prepare a resolution upon the subject for presentation to the Club at that meeting.

#### ELECTIONS AND APPOINTMENTS.

**Buffalo, New York & Philadelphia.**—The following circular from President G. Clinton Gardner, is dated New York, June 5:

"General Manager Oliver Watson, having tendered his resignation, the same is accepted and the position of General Manager is hereby abolished.

"The duties of General Manager under the organization devolve upon General Superintendent George S. Gatchell."

**Burlington, Cedar Rapids & Northern.**—The board has elected C. J. Ives, President, in place of Joshua Tracy, deceased, and Robert Williams (late Superintendent), Vice-President and General Superintendent, to succeed Mr. Ives.

**Chicago, Milwaukee & St. Paul.**—The following circular from General Passenger Agent A. V. H. Carpenter, is dated Milwaukee, Wis., June 10:

"Mr. S. T. Seely having resigned the position of Traveling Passenger Agent for this company in New York state (outside of New York city), to accept the Ticket Agency of the New York, Lake Erie & Western Railway, at Elmira, N. Y., Mr. William Wallace Hensford will hereafter have charge of the territory named above. He will also, until otherwise ordered, continue in charge of the passenger business in the province of Ontario, with the title of Eastern Passenger Agent. His headquarters for Ontario will remain at No. 28 Front street, East, Toronto, Ont.; for New York state, at Buffalo, New York."

**Chicago, Milwaukee & St. Paul Proprietary Lines.**—At the annual meetings in Chicago, June 9, officers were chosen as follows: **Chicago & Evanston.**—President, J. C. Easton; Directors, Julius Wadsworth, T. W. Wadsworth, Edwin Walker, E. K. Hubbard, **Chicago & Lake Superior.**—President, J. C. Easton; Directors, Julius Wadsworth, Philip Wadsworth, T. W. Wadsworth, Edwin Walker, James Stillman, E. K. Hubbard; Secretary, T. W. Wadsworth.

**Chicago & Pensacola Grand Trunk.**—The directors of this new company are: Jacob Guttman, Aberdeen, Miss.; J. W. Stillwell, Selma, Ala.; De Witt C. White, Moulton, Ala.; H. M. H. Smith, Montgomery, Ala.; M. G. Kennedy, Birmingham, Ala.; George H. Parker, Julius Danner, C. C. W. Smith, John A. Johnson, Abraham Austin, Cullman, Ala. The board has elected C. C. W. Smith, President; Julius Danner, Secretary and Treasurer; H. M. H. Smith, Assistant Secretary.

**Chicago, Rock Island & Pacific.**—Mr. Avery Moore has been appointed Freight Agent for Colorado and New Mexico, with office in Denver.

**Chicago, St. Paul, Minneapolis & Omaha.**—At the annual meeting in Hudson, Wis., June 7, the following directors were chosen: Marvin Hughitt, Albert Keep, W. K. Vanderbilt, Cornelius Vanderbilt, A. H. Wilder, J. D. Howe, J. M. Whitman, H. McK. Twombly, C. M. Depew, M. L. Sykes, W. D. Washburn, W. L. Scott. Messrs. Winter, Howe and Whitman are the new directors.

The officers elected were: Marvin Hughitt President; M. L. Sykes, Vice-President and Treasurer; Edwin E. Woodman, of Hudson, Secretary; Executive Committee: Marvin Hughitt, Albert Keep, M. L. Sykes, W. K. Vanderbilt and J. D. Howe.

**Cincinnati, Hamilton & Dayton.**—At the annual meeting in Cincinnati, June 17, the following directors were elected: H. J. Jewett, George R. Blanchard, New York; Jarvis M. Adams, Cleveland; C. C. Waite, F. H. Short, E. A. Ferguson, William Hooper, John Carlisle, William A. Proctor, Cincinnati.

**Columbus & Maysville.**—At the annual meeting at Hillsboro, O., May 27, the following directors were chosen: C. S. Bell, F. J. Picard, J. H. Jolly, W. R. Smith, R. T. Hough, D. F. Scott, J. H. Strain. The board re-elected C. S. Bell President; W. R. Smith, Secretary; E. L. Ferris, Treasurer; S. Feike, Superintendent; and F. J. Picard, General Manager, Columbus, Ohio.

**Detroit, Mackinac & Marquette.**—At the annual meeting in Detroit, Mich., June 9, the following directors were elected: James McMillan, John S. Newberry, Hugh McMillan, Francis Palmis, George Hendrie, Wm. B. Moran, F. E. Driggs, G. Q. Seney. The board elected James McMillan President; John S. Newberry Vice-President; Hugh McMillan Secretary and Treasurer.

**Dubuque & Dunleith Bridge Co.**—This company has elected W. B. Allison, President; Gen. Booth, Secretary and Manager; H. L. Stout, Treasurer. It is controlled by the Illinois Central.

**Eastern & Western Air Line, of Illinois.**—The directors of this company are: C. L. Conkling, F. L. Matthews, J. C. Conkling, H. B. Buck, George H. Souther, Springfield, Ill.; Thomas W. Osborn, S. L. Merrill, G. E. Hubbard, David Phillips, New York.

**Gainesville & Dahlgren.**—At the annual meeting of the stockholders of this road at Gainesville, Ga., June 12, the following officers were elected: President, W. P. Price; directors, A. D. Candler, A. Fudolph, G. W. Walker, C. C. Sanders, S. C. Dunlap, Gainesville; F. W. Hall, N. F. Howard, W. J. Worley, P. M. Sittou, J. P. Imboden, Dahlgren, Georgia.

**Grand Rapids & Indiana.**—Mr. Chas. F. Clugston is appointed Traveling Freight Agent of this company, with headquarters at Grand Rapids, Mich. The headquarters of Mr. Geo. S. Fowler, Traveling Freight Agent, have been changed to Fort Wayne, Indiana.

**Louisville, New Albany & Chicago.**—It is stated that Mr. C. C. Bent, now Superintendent of Transportation, will succeed Mr. John McLeod as General Superintendent.

**Master Car-Builders' Association.**—At the annual convention in Saratoga last week the following officers were elected for the ensuing year: President, Leander Garey; First Vice-President, Wm. McWood; Second Vice-President, J. W. Cloud; Third Vice-President, B. K. Verbyck; Treasurer, John Kirby; Executive Committee, F. D. Adams, Joseph Townsend, G. W. Rhodes.

**Missouri Pacific.**—Mr. J. C. McQuistor has been appointed Road-Master. He was recently on the Cincinnati, Indianapolis, St. Louis & Chicago road.

**New York, Lake Erie & Western.**—Mr. John N. Abbott, General Passenger Agent of this road, makes the following announcement: "H. A. Milford has been appointed City Passenger Agent at Elmira, and will have special charge of the outside passenger and excursion business. S. T. Seely will succeed Mr. Milford as ticket agent at the Elmira depot. Both appointments took effect June 10."

**New York, West Shore & Buffalo.**—The following circular from the Receivers are dated New York, June 9:

"You will please take notice that we (Horace Russell and Theodore Houston) have this day been appointed Receivers of the New York, West Shore & Buffalo Railway, under and by virtue of orders of the Supreme Court of the state of New York and of the United States Circuit Court for the District of New Jersey, and have taken possession of the property of said corporation, and entered upon the discharge of our duties. All agents and employees are requested to continue properly and faithfully to discharge their various duties as heretofore, until further directions are given. J. D. Layng has been appointed General Manager, with all powers heretofore exercised by him, and will be obeyed and respected accordingly."

"Mr. F. E. Worcester having been appointed Treasurer for the Receivers, all moneys now in hands of, or hereafter received by agents and others for account of the New York, West Shore & Buffalo Railway Co., will be held for account of the Receivers, and transmitted to the Treasurer at No. 15 Broad street, New York, in usual form. Mr. J. W. Reinhart has been appointed General Auditor for the Receivers, through whom all settlements of freight, ticket and other accounts should be made."

**Northern Pacific Terminal Co.**—At the annual meeting in Portland, Oregon, June 16, the following directors were chosen: Edward S. Adams, Robert Harris, T. J. Coolidge, Henry Villard, C. H. Prescott, Henry Failing, C. H. Lewis, R. Koehler, C. A. Dolph.

**Ohio & Baltimore Short Line.**—This company has elected J. B. Washington, President; W. W. Smith, Wm. Workman, S. Spencer, H. S. Burgess, S. K. Harris, John McCleave, Directors; W. W. Smith, Secretary; Wm. H. Ijams, Treasurer. The company is controlled by the Baltimore & Ohio.

**Oregon Improvement Co.**—At the annual meeting in Portland, Oregon, June 16, the following directors were chosen: William Endicott, Jr., N. P. Halliwell, J. J. Higginson, Elijah Smith, John Muir, C. H. Prescott, C. J. Smith, D. F. Thompson and William S. Lison.

**Oregon Railway & Navigation Co.**—At the annual meeting in Portland, Ore., June 16, the following directors were chosen: T. Jefferson Coolidge, William Endicott, Jr., N. P. Halliwell, Boston; Elijah Smith, John H. Hall, New York; Charles L. Colby, Milwaukee; W. S. Ladd, Henry Failing, H. W. Corbett, C. A. Dolph, C. H. Prescott, L. Brooke, C. H. Lewis, Portland.

**Oregon & Transcontinental Co.**—At the annual meeting in Portland, Oregon, June 16, the following directors were chosen: Elijah Smith, T. J. Coolidge, William Endicott, Jr., Charles L. Colby, M. C. Whitney, Brayton Ives, N. P. Halliwell, J. J. Higginson, C. H. Prescott, Henry Failing, D. H. Lewis, C. J. Smith, C. A. Dolph, W. S. Ladd, R. Koehler, Joseph Simon and William Ladd.

**Pine Bluff & Swan Lake.**—The directors of this new road are: C. M. Neel, M. L. Bell, T. F. Burks, C. M. Neel, Jr., and A. A. Neel, all of Pine Bluff, Arkansas.

**Pontiac, Oxford & Port Austin.**—Mr. C. C. Jenkins, has been appointed General Passenger and Ticket Agent of this road, with headquarters at Pontiac, Mich. He was lately on the Port Huron & Northwestern.

**Port Huron & Northwestern.**—Mr. Ernest Ingersoll has been appointed Auditor of this road.

**Port Jervis & Monticello.**—At a meeting held in New York, June 2, the following directors were chosen: Henry Day, F. J. DePeyster, Benjamin L. Swan, Jr., W. Alexander Smith, James W. Hayward, Gordon Norrie, Edward H. Borner, Robert E. Livingston, Clinton V. R. Ludington. Mr. Day was chosen President and M. V. Heller General Manager.

**Railway Employes' Mutual Benefit Association.**—At the annual convention in Chicago, last week, C. L. Rising was elected President; D. Kenyon, Vice-President, and C. F. Resseque, Secretary. Messrs. Frank S. Bagg, W. V. Doolittle and A. R. Head were chosen directors to serve until June, 1887.

**Rock Island & Peoria.**—At the annual meeting in Rock Island, Ill., June 11, the old directors and officers were re-elected.

**St. Joseph & Western.**—At a meeting held in St. Joseph, Mo., last week, the following directors were chosen: Fred. L. Ames, Elisha Atkins, Ezra H. Baker, F. Gordon Dexter, Henry McFarland, Charles F. Adams, Jr., Boston; James H. Benedict, Francis H. Williams, James C. Parrish, Sidney Dillon, William C. Strauss, New York; Elias C. Benedict, Connecticut; Winslow Judson, St. Joseph.

**St. Paul & Sioux City.**—At the annual meeting in St. Paul, June 7, the following directors were chosen: M. Hughitt, W. K. Vanderbilt, Cornelius Vanderbilt, Albert Keep, M. L. Sykes, E. W. Winter, E. F. Drake, John L. Merriam, C. H. Bigelow, A. H. Wilder, J. M. Whitman, J. B. Redfield, George A. Hamilton, H. McK. Twombly, C. M. Depew. At a subsequent meeting of the directors the following officers were elected: M. Hughitt, President; E. F. Drake, Vice-President; M. L. Sykes, Treasurer; George A. Hamilton, Secretary; George A. Hamilton, Local Treasurer; S. O. Howe, Assistant Secretary.

**Southwestern, Arkansas & Indian Territory.**—The directors of this new road are: J. A. Smith, Guidon, Ark.; F. B. Vandorn, Smithton, Ark.; J. S. Ross, J. J. Young, Okla. Ark.; S. C. Martin, Little Rock.

**Union Pacific.**—At a meeting of the board held in New York, June 18, Mr. Charles Francis Adams, Jr., was chosen President of the company in place of Sidney Dillon, resigned.

**Virginia & Truckee.**—At the annual meeting in Virginia City, Nev., June 2, the following directors were chosen: D. O. Mills, Wm. Sharon, H. M. Yerington, I. L. Requa, J. W. Eckley, D. L. Bliss, J. E. Wratten, W. H. Blauvelt, H. P. Cohen. At a subsequent meeting of the board the following officers were elected: D. O. Mills, President; H. M. Yerington, Vice-President and General Superintendent; E. B. Yerington, Secretary; Bank of California, Treasurer; D. A. Bender, General Freight and Passenger Agent.

**Yard Masters' Mutual Benevolent Association.**—At the annual convention in Atlanta, Ga., last week, the following officers were chosen: President, J. C. Campbell, Derry, Pa.; First Vice-President, W. J. Kenny, Chicago; Second Vice-President, J. J. Cathin, Jersey City; Secretary and Treasurer, Joseph Sanger, Indianapolis; Executive Committee, John Hicks, George F. David, E. A. Cooper, George J. Johnson and S. F. Randall.

#### PERSONAL.

—Mr. Leavitt Burnham, Land Commissioner of the Union Pacific road, has been appointed a member of the board of regents of the State University of Nebraska.

—Mr. Sidney Dillon has finally retired from the presidency of the Union Pacific Co., his resignation, tendered on account of ill health, having been accepted June 18.

—Mr. W. H. Burr, late of the Mexican National road, has been appointed Engineer to the Venezuelan Government in South America, with headquarters at Caracas, Venezuela.

—Mr. Frank Fenton, Civil Engineer of the Camden & Atlantic road, was killed June 14, in a collision between two passenger trains on that road. He was riding on one of the trains as a passenger.

—Colonel William McCandless died in Philadelphia, June 17, after a long illness resulting from a wound received during the war. He was 49 years old, and early in life was for several years an engineer on the Pennsylvania Railroad, but left that position and afterward became a lawyer. From 1874 to 1878 Colonel McCandless was Secretary of Internal Affairs of Pennsylvania.

—Dr. Samuel Ingalls, a well known physician and a director of the Boston, Winthrop & Shore Co., was struck by a locomotive while crossing the track near his residence in Winthrop, Mass., June 11, and so severely hurt that he died the same day. He was the first projector and President of the Boston & Winthrop Co., afterward consolidated with the Boston, Winthrop & Shore.

—General A. M. West, who was nominated for Vice President on the ticket with General Butler by the Greenback National Convention, is an old railroad man, having been for a number of years Vice-President of the Mississippi Central Co. and afterward connected with the consolidated New Orleans, St. Louis & Chicago. A Texas paper says that General West is well known in that section as a stump speaker. He weighs 225 pounds, can eat dinner enough for three men and has a voice which can be distinctly heard for two miles. If General West should take the stump he would make a lively campaign.

—German papers note the death of Mr. John Blekinsop, who was engaged by the Vauxhall Foundry, of Liverpool, to set up the locomotives built by it for the Brunswick & Wolfenbüttele Railroad, which was the first state railroad in Germany, and to instruct the Germans to run them. He ran the first train on this road in 1838, and was soon put in charge of the locomotive department of the road, which position he held till his death, training a great number of German locomotive engineers, and commanding their respect and devotion in a remarkable manner. In 1842 he built the first locomotive constructed on the continent. Mr. W. Claus, an engineer trained under Blekinsop in these early years, says that at that time the men in the shops imitated his in manner and speech, a strange mixture of German and English prevailing in the shops, as for some time he depended upon an interpreter to make himself understood. Blekinsop was a Newcastle man, born in 1813, within a few miles of Wylam, the scene of George Stephenson's early work.

#### TRAFFIC AND EARNINGS.

##### East-bound Rates.

The following is the official statement of the action of the Joint Executive Committee at its meeting held on June 13:

"At the meeting of the Joint Executive Committee, held



to-day, it was agreed that the following articles in carloads, now in the eighth class, be placed in a special class, viz.: Grain, flour, feed, bran, meal, middlings, oilcake and meal, and cottonseed cake and meal, and that, taking effect on June 24 next, the rates thereon shall be on the basis of 20 cents per 100 pounds from Chicago to New York, and that, taking effect July 21 prox., the rate will be advanced to the basis of 25 cents per 100 pounds; also that, taking effect on the same date, the rate on the seventh class and live hogs will be on the basis of 25 cents per 100 pounds, and on the ninth class 30 cents per 100 pounds from Chicago to New York, and, taking effect July 21 prox., the rates on these classes will be further advanced to the basis of 30 cents on the seventh class and live hogs, and 35 cents on the ninth class from Chicago to New York; also that, taking effect June 24 next, the rates on the following articles will be on the following basis: Chicago to New York, eighth class, excepting articles included in the above-mentioned special class, 25 cents per 100 pounds; high wines, whiskey, alcohol and domestic spirits in carloads at \$20 valuation of leakage, 35 cents per 100 pounds. Rates on high wines, etc., on less than car-loads, and on grass seed of all kinds in any quantity, will be restored to the published tariff rates in the several classes in which they are placed in the official classifications of east-bound rates."

#### Railroad Earnings.

Earnings for various periods are reported as follows:

Five months ending May 31:

	1884.	1883.	Inc. or Dec.	P. c.
Ala. Gt. South...	\$439,795	\$403,434	I.	7.7
Char., Col. & A...	319,600	349,685	D.	8.6
Ches. & Ohio...	1,439,603	1,473,014	D.	2.3
Cin., N. O. & T. P.	1,004,823	948,646	I.	6.0
Cin., W. & Balt.	671,388	716,343	D.	6.3
Cleve., Ak. & C.	181,273	203,888	D.	11.1
Col. & Greenville	270,707	335,090	D.	19.0
Eliz., Lex. & B. S.	269,051	260,605	I.	3.2
Florida Ry. & N.				
Co.	440,292	372,023	I.	18.1
Grand Trunk...	6,704,667	7,539,374	D.	11.0
Gulf, Col. & S. F.	669,874	697,544	D.	3.9
Ind., Bloom. & W.	1,024,608	1,169,940	D.	12.5
Kansas City, Ft.				
Scott & Gulf...	966,570	751,812	I.	24.6
Kan. City, Spr. &				
Mem.	425,294			
Little R. & Ft. S.	192,388	212,184	D.	9.4
Little Rock, M. R.				
& Texas...	130,830	162,187	D.	19.3
N. O. & Nor'west.	611,318	31,322	I.	129.966
Rich. & Dan.	1,573,283	1,506,115	I.	67.168
South Carolina...	521,565	570,014	D.	48.449
St. L. & A. & T. H.				
Main Line...	585,463	507,959	D.	12.496
Belleville Line.	323,033	336,299	D.	13.206
Vicksburg & Mer.	192,400	201,876	D.	9.476
Vicks. Shreve. &				
Pacific...	49,083	31,582	I.	17,501
Va. Midland...	604,271	605,281	D.	1.110
Western N. C.	161,306	123,103	I.	38,203
Wis. Central...	615,125	500,180	I.	54.945

Four months ending April 30:

Bur., C. R. & No.	\$850,752	\$853,570	D.	\$4,818	0.5
Net earnings...	251,801	213,608	I.	36,033	16.7
Des. M. & Ft. D.	107,348	93,694	I.	13,654	14.3
Net earnings...	8,248	21,252	I.	6,996	33.3
Union Pacific...	7,188,554	8,345,113	D.	1,156,560	13.8
Net earnings...	2,300,592	4,143,606	D.	1,843,014	44.5

Month of April:

Bur., C. R. & N.	\$217,576	\$218,253	D.	\$677	0.3
Net earnings...	71,775	74,222	D.	2,447	3.3
Cin., Ind., St. L. &					
Chi.	197,755	193,141	I.	4,614	2.4
Net earnings...	70,723	71,791	I.	7,932	11.0
Des. M. & Ft. D.	28,939	28,183	I.	4,800	16.8
Net earnings...	6,102	5,940	I.	222	3.7
Union Pacific...	2,128,905	2,363,277	D.	234,312	9.9
Net earnings...	951,940	1,284,034	D.	332,094	25.9

Month of May:

Ala. Gt. South...	\$88,514	\$78,359	I.	\$10,155	13.0
Char., Col. & A...	48,241	47,962	I.	279	0.5
Ches. & Ohio...	283,000	331,173	D.	48,173	14.5
Cin., N. O. & T. P.	219,147	208,208	I.	10,939	5.3
Cin., W. & Balt.	131,717	137,859	D.	2,142	1.5
Cleve., Ak. & C.	40,211	44,251	D.	4,040	9.1
Col. & Greenville	36,637	37,308	I.	671	1.8
Eliz., Lex. & B. S.	59,332	56,629	I.	2,703	4.7
Florida Ry. & N.					
Co.	86,117	74,798	I.	11,319	15.1
Georgia Pacific...	47,014				
Net earnings...	17,491				
Grand Trunk...	1,227,003	1,402,616	D.	175,613	12.5
Gulf, Col. & S. F.	141,303	140,771	I.	532	0.4
Ind., Bloom. & W.	194,992	234,151	D.	39,159	16.7
Kansas City, Ft.					
Scott & Gulf...	200,821	145,097	I.	55,724	38.4
Kan. City, Spr. &					
Mem.	128,804				
Little R. & Ft. S.	37,125	42,892	D.	5,767	13.4
Little Rock, M. R.					
& T.	23,562	27,639	D.	4,077	14.6
N. O. & Nor'west.	28,408	8,968	I.	19,440	216.0
Rich. & Dan.	209,329	207,287	I.	2,042	0.7
South Carolina...	74,660	75,089	D.	429	0.6
St. L. & A. & T. H.					
Main Line...	104,601	101,731	I.	2,870	2.9
Belleville Line.	55,178	60,914	D.	5,736	9.4
Vicksburg & Mer.	31,157	32,540	D.	1,383	4.2
Vicks. Shreve. &					
Pacific...	5,685	2,658	I.	3,027	112.1
Virginia Midland...	137,362	137,765	D.	403	0.3
Western N. C.	37,324	27,523	I.	4,801	16.7
Wis. Central...	123,006	119,039	I.	4,027	3.4

First week in June:

Bur., C. R. & No.	\$50,350	\$53,656	D.	\$3,306	6.1
Chi. & East. Ill.	30,833	38,829	D.	7,996	20.5
Chi., Mil. & St. P.	429,000	451,144	D.	22,144	4.9
Chi. & Nor'west.	49,100	491,000	D.	900	0.2
Chi., St. Paul, M.					
& Omaha...	113,400	96,100	I.	17,300	17.9
Louisv. & Nash.	247,715	230,370	I.	17,345	7.5
Roch. & Pitts.	26,708	12,950	I.	13,848	106.9

Second week in June:

Chi. & Nor'west.	\$183,390	\$484,800	D.	\$1,500	0.3
Chi., St. P. M. &					
Omaha...	111,600	93,400	I.	18,200	19.6
Northern Pac...	263,655	184,101	I.	79,555	43.2
St. L. & San Fr.	82,000	56,800	I.	25,200	44.3

Weekly earnings are usually estimated in part, and are subject to correction by later statements.

#### Grain Movement.

For the week ending June 7 receipts and shipments of grain of all kinds at the eight reporting Northwestern markets and receipts at the seven Atlantic ports have been, in bushels, for the past eight years:

	North-western receipts.	North-western shipments.	Atlantic receipts.
Year	Total.	By rail.	P. c.
1877...	2,070,591	691,033	30.6
1878...	3,579,064	778,483	21.9
1879...	4,773,399	2,708,245	54.0
1880...	5,754,274	1,727,629	24.7
1881...	7,320,267	1,634,114	28.4
1882...	3,110,851	1,411,928	38.9
1883...	5,880,199	1,443,201	32.3
1884...	5,454,028	2,429,285	49.1

Thus the receipts of the Northwestern markets for the week were but 428,000 bushels less this year than last, and were exceeded only in the corresponding weeks of last year,

1881 and 1880. They were no less than 1,627,000 bushels (42 per cent.) more than in the previous week of this year, and were the largest of the year. The sudden and great increase is mostly corn, and it appears chiefly in the Chicago receipts, which were 1,288,000 bushels (73 per cent.) more than in the previous week, and much the largest of the year; but there were large gains also at Milwaukee, Toledo, Detroit and Duluth, while Peoria suffered a large decrease. The increase is so general as to indicate that the farmers had to go through with their spring work in the fields that they had some time to market their stocks of grain.

The shipments of these markets were 509,000 bushels more than in the corresponding week of last year, but they were exceeded largely in 1880 and 1881, and slightly in 1879. The rail shipments were larger than in any other year except 1879, when the roads were carrying for less than the present rate even—10 cents instead of 15. They were larger than the week before, and, with one exception, were the largest of the year. The shipments down the Mississippi this year were 311,763 bushels, or 6.3 per cent of the whole.

The Atlantic receipts for the week were 230,000 bushels less than in the corresponding week of this year, and much less than in any of the four years from 1878 to 1881. They were, however, 380,000 bushels more than in the previous week of this year, and were the largest of the year.

Exports from Atlantic ports for the week to June 7 have been, for five years:

	1880.	1881.	1882.	1883.	1884.
Flour, bbls...	138,582	134,314	168,235	105,216	143,034
Grain, bu...	6,019,045	4,166,673	956,838	2,292,075	2,204,406

Including flour, the exports this year are a little more than last year and very much greater than in 1882, but they are very much less than in 1880 and 1881. With two exceptions they are the largest of the year.

#### Coal.

Coal tonnages for the week ending June 7 are reported as follows:

	1884.	1883.	Inc. or Dec.	P. c.
Anthracite...	63,571	405,633	D.	432,067
Eastern bituminous...	206,081	179,049	I.	27,032
Coke...	57,981	54,949	I.	3,032

The week was one of total suspension by the anthracite companies, and nearly all the shipments reported were over the Pennsylvania Railroad, which does not join in the agreement.

Clearfield and Cumberland shipments continue large, and shipments of gas coal are also heavy.

The coal tonnage of the Pennsylvania Railroad for the week ending June 7 was:

	Coal.	Coke.	Total.
Line of road...	149,578	50,580	200,158
From other lines...	54,929	7,401	62,330
Total...	204,507	57,981	262,488

The total tonnage this year to June 7 was 5,643,071 tons, against 5,179,913 tons to the corresponding date last year; an increase of 463,158 tons, or 8.9 per cent.

Cumberland coal shipments for the week ending June 7 were 74,811 tons. The total shipments this year to June 7 were 1,102,325 tons, against 944,469 tons for the corresponding period last year, an increase of 157,856 tons, or 16.7 per cent.

It is understood that the Lehigh Valley Co. has completed its purchase of a large tract of bituminous coal lands in the Snow Shoe district. The coal from this tract will pass over the Pennsylvania Railroad to Tomhicken and thence over the Lehigh Valley road to tidewater. It is also understood that an agreement has been made with the Pennsylvania Railroad Co. for special rates on the coal carried from the mines to Tomhicken.

The coal tonnage of the Chesapeake & Ohio Railroad for the five months ending May 31 was as follows:

	1884.	1883.	Decrease.	P. c.
Coal...	300,053	392,600	32,547	8.3
Coke...	23,006	48,373	25,367	52.9
Total...	383,059	440,973	57,914	13.1

The decrease in coal tonnage was in canal, block and gas coals, the New River shipments showing an increase.

Cumberland coal shipments for the week ending June 14 were 64,433 tons. The total shipments this year to June 14 were 1,166,758 tons, against 995,574 tons to the corresponding date last year, an increase of 171,184 tons, or 17.2 per cent.

Anthracite coal tonnages for May and the five months ending May 31 are given as follows by the report of Mr. John H. Jones the Official Accountant, the statement including the entire production of anthracite coal, excepting that consumed by employees, and for steam and heating purposes about the mines:

	1884.	1883.	1884.	1883.
Phila. & Read...	979,044	563,061	3,998,843	2,618,729
Cent. of N. J.		380,729		1,745,999
Lehigh Valley...	487,530	483,258	2,204,599	2,218,601
Del., Lack. & W.	442,265	391,239	1,896,620	1,802,037
Del. & Hud. Canal				
Co.	292,161	266,264	1,215,930	1,243,813
Penna. R. R.	368,612	219,609	1,167,511	955,237
Penn. A. Coal Co.	123,454	109,779	506,141	326,697
N. Y., L. E. & W.	35,076	28,277	140,412	127,443
Total...	2,628,142	2,439,224	11,130,074	11,340,186

New Jersey Central tonnage is included in the Reading statement this year. The Lehigh Valley tonnage includes the production of the mines of the State Line & Sullivan Co., amounting to 8,058 tons in May. In addition to the amount credited to the Delaware & Hudson Canal Co., above, there were 51,240 tons transported from mines by that company during May, which is included in tonnage of other interests.

The month shows an increase in tonnage of 188,918 tons, or 7.8 per cent., but for the five months there was a decrease of 210,112 tons, or 1.8 per cent., notwithstanding the increase in April and May. For the month all the companies show increases; for the five months the Erie, the Lackawanna and the Pennsylvania Railroad only show gains, the others decreases.

The division of the output among the companies was as follows for the five months, New Jersey Central being included with the Reading in both years, for comparison:

	1884.	1883.	Inc. or Dec.	P. c.
Philadelphia & Reading...	35.9	38.5	D.	2.6
Lehigh Valley...	19.8	20.4	D.	0.6
Delaware, Lackawanna & Western...	17.0	15.9	I.	1.1
Delaware & Hudson Canal Co...	10.9	11.0	D.	0.1
Pennsylvania Railroad...	10.5	8.4	I.	2.1
Pennsylvania Coal Co...	4.6	4.7	D.	0.1
New York, Lake Erie & Western...	1.3	1.1	I.	0.2
Total...	100.0	100.0		

The stock of coal on hand at tidewater shipping points, May 31, 1884, was 858,837 tons; on April 30, 1884, 859,450 tons; decrease, 613 tons, or 0.1 per cent. during the month.

#### Boston Traffic Notes.

The movement of freight into New England in May included 20,479 loaded cars, of which 2,898 came over the

New York & New England by Newburg, 5,699 by the Hoosac Tunnel and 12,389 over the Boston & Albany from Albany. Included in the receipts at Newburg are 1,509 car-loads of coal.

#### Cotton.

Cotton movement for the week ending June 13 is reported as follows, in bales:

	1884.	1883.	Inc. or Dec.	P. c.
Receipts...	5,252	6,308	D.	4,056
Shipments...	11,006	16,471	D.	5,465
Stock, June 13...	50,355	98,763	D.	48,408

#### Seaports.

	1884.	1883.	Inc. or Dec.	P. c.
Receipts...	8,400	21,573	D.	13,164
Exports...	27,276	41,735	D.	14,459
Stock, June 13...	424,727	430,825	D.	6,098

The total actual shipments from plantations for the cotton year (from Sept. 1) to June 13 are estimated at 5,615,954 bales; the decrease, as compared with last year, is 1,262,797 bales, the increase as compared with 1881-82 is 337,487 bales, and the decrease from 1880-81 is 753,479 bales.

#### Passenger Traffic Notes.

The Pullman hotel coaches heretofore run between Chicago and New York by the Erie & Chicago line will



now is; that an annual report of the condition of the property shall be made every September; that it will protect the lessor against all actions and claims that may arise from the operation or management of the road; that it will keep the property insured against loss by fire; that it will ascertain monthly and render a statement to the lessors of the gross receipts of the Northern, the Concord & Claremont (N. H.), the Peterboro & Hillsboro, the Boston, Concord & Montreal and the Pemigewasset Valley railroads, and that a sum equal to 25 per cent. of said gross receipts, less the sum of \$200,000 per annum, shall be set aside for said Boston, Concord & Montreal Railroad as rental for the use of its road and the Pemigewasset Valley Railroad, and the Boston & Lowell Co., in consideration thereof, guarantees to the Boston, Concord & Montreal Co. that the balance of the 25 per cent. remaining after the deduction of the \$200,000 per annum shall be equal to a sum sufficient to pay the interest upon all the indebtedness of the lessor company and 6 per cent. on the outstanding preferred stock for the first year of the lease, and 5 per cent. upon the same for each succeeding year thereafter during its continuance; the lessee company agrees that it will as often as once in three months during the continuance of the lease pay over to the lessor any difference between the rental provided for and the guaranty given; provided, however, that if any extension of the Pemigewasset road shall be made under the provisions of the lease of that road, that the interest on the bonds or the dividends on the capital stock shall constitute an addition to the rent agreed to be paid. The business of the roads, by means of which a sum equal to 25 per cent. of the gross receipts may be ascertained, and in which gross receipts the lessor has an interest, shall be confined, so far as practicable to the lines of road named, except during such years as the gross receipts shall equal for the year \$2,000,000, no division shall be made with the roads operated and controlled by the lessee; and it is further understood that in case the gross receipts of the several roads exceed in amount in any one year \$2,000,000, the rental of the lessor shall not exceed in such event 25 per cent. of said \$2,000,000. Both leases are for 99 years.

A resolution was offered to ratify the leases as presented. After some discussion it was ordered that a stock vote be taken, the polls to remain open till 9 a. m. on Wednesday, June 18, in order that all stockholders might have an opportunity to vote.

The stockholders reassembled on June 18, when the tellers announced that a large majority of all the stock had been voted in favor of the ratification of the leases. They have now been approved by the stockholders of all the companies.

**Chester & Lenoir.**—This road is finally completed to Lenoir, N. C., 110 miles from the starting point at Chester. The opening of the road to Lenoir was celebrated by a public meeting, procession, banquet and other ceremonies. The road was begun several years ago, and made very slow progress until within the last year. It is now leased to the Charlotte, Columbia & Augusta Co., and is operated by that company. The whole length of the line from Chester to Lenoir is 110 miles, of which 22 miles were the old King's Mountain Railroad, and 10 miles from Newton, N. C., to Hickory are run on the Western North Carolina track, so that the present company has built 78 miles of road.

**Chicago & Pensacola Grand Trunk.**—This company has filed articles of incorporation in Alabama to build a railroad from Pensacola, Fla., northward through Alabama to the Tennessee line, passing through Montgomery, Birmingham and Sheffield.

**Cincinnati, Hamilton & Dayton.**—At the annual meeting in Cincinnati June 17 the reports presented showed an excess of earnings over expenses and fixed charges of \$310,700, a decrease of \$25,800 from last year, which is mainly due to the reduction in freight rates and the damage and interruption to traffic by the floods at Cincinnati.

**Danville & New River.**—In the month of May this road earned \$9,160, the largest receipts of any one month since it went into operation. The total number of passengers carried was 3,060 and the freight tonnage was 2,690. The business of the road has so far exceeded the expectation of the company and an increase is expected when the extension to Patrick Court House is completed.

**Delaware, Lackawanna & Western.**—This company makes the following report to the New York Railroad Commission of the operation of its leased lines in New York (including the Cayuga & Susquehanna, the Green, the New York, Lackawanna & Western, the Oswego & Syracuse, the Utica, Chenango & Susquehanna Valley and the Valley roads) for the quarter ending March 31:

Gross earnings.....	\$1,025,304
Expenses (61.9 per cent.).....	635,273
Net earnings.....	\$390,031
Taxes and rentals.....	505,678
Deficit.....	\$115,647

This quarter has usually the lightest earnings of the year, and was specially marked this year by light coal traffic and very low rates on through freight.

**Eastern & Western Air Line.**—This company has filed articles of incorporation in Illinois to build a railroad from Keithsburg, on the Mississippi River, eastward across the state to a point on the Indiana line near Kankakee, with branches to Chicago and Springfield. A company by the same name a short time ago filed articles of incorporation in Iowa and the Illinois line is an extension of the projected line in Iowa.

**East & West, of Alabama.**—Track on this road is now laid to Cross Plains, Ala., 24 miles westward from the late terminus at Cartersville, Ga., and 61 miles from the eastern terminus at Cartersville. There remain only eight miles of track to be laid between Cross Plains and East & West Junction to connect with the section of road from East & West Junction to Broken Arrow, which has been in operation for several months. As soon as this gap is completed trains will run through from Cartersville, Ga., to Broken Arrow, Ala., 113 miles.

**East Tennessee, Virginia & Georgia.**—The following statement is presented by the board, the earnings and expenses for May and June of this year being estimated, for the year ending June 30:

1883-84.....	1882-83.....	Increase.....	P. C.
Earnings.....\$4,158,046	\$3,776,754	\$381,292	10.1
Expenses.....2,421,632	2,383,702	37,930	1.5
Net earnings.....\$1,736,414	\$1,393,052	\$343,362	24.6

The charges for 1883-84, including interest on floating debt, amount to \$1,473,121, showing a surplus of \$263,293 for the year. The statement says:

"All fixed charges of the company falling due in 1884 have been provided for and will be paid as they mature. The entire floating debt has been provided for by the individual members of the board and their friends, who have extended the same over 10 years by taking 6 per cent. debentures therefor at par without discount or commission. There has been no increase of floating debt during the past year, and there is no reason to anticipate any in the future."

**Georgia Pacific.**—The following statement is made by this company for May and the eight months of its fiscal year from Oct. 1 to May 31:

Earnings.....	May.....	Eight months.....
Expenses.....	\$47,014	\$377,829
	29,523	249,024
Net earnings.....	\$17,491	\$128,805
Per cent. of expenses.....	42.8	65.9

The company is now operating 275 miles of road. Work is progressing well on the gap west of Birmingham, Ala., in the main line.

**Gulf, Colorado & Santa Fe.**—A special meeting of the stockholders of this company was held in Galveston, Tex., June 11, to consider a proposition submitted by the board for the extension of the main line and the building of several branches, including the building of about 200 miles of new road in all. After some discussion the stockholders voted not to approve of the proposition as submitted, and the building of the proposed extensions is therefore abandoned, for the present at any rate.

**Hartford & Harlem.**—In New Haven, Conn., June 17, the Railroad Commissioners gave a hearing on the petition of this company for an extension of the time in which it is required to expend 10 per cent. of its capital stock in the construction of the road. According to the general railroad law the time in which the 10 per cent. must be expended expires on Dec. 30 of this year, but the company asks the Commission for an extension of two years. The reasons on which it bases its petition are the delays resulting from litigation brought by opposing roads, and also the delay caused by the disapproval of the original location, and the necessity of making a new one. The petition was opposed by representatives of the New York and Connecticut Air Line, and the Commissioners reserved their decision.

**Illinois Central.**—This company's statement shows for May earnings from traffic as follows:

1884.....	1883.....	Inc. or Dec. P. C.
Ill. lines and Southern Div. \$790,032	\$748,804	I. \$41,228 5.5
Iowa lines.....	130,768	D. 22,787 14.8
Total.....	\$920,800	\$902,359 I. \$18,441 2.0

The Land Department reports for May sales of 700 acres of land for \$3,573. The amount of cash collections on land accounts was \$6,240 for the month.

**Illinois Midland.**—In the United States Circuit Court in Springfield, Ill., June 13, a decree was rendered requiring all creditors and others interested in the suits against this company to close their claims and file their testimony before the several commissioners on or before Sept. 1 next. The order further directs that the commissioner shall file his report with the Court by Oct. 1, and that all exceptions to such report shall be filed before Oct. 20; all proofs in support of or in opposition to such exceptions shall be filed by Nov. 10, when the case will be submitted to the Court upon the commissioner's report and for a final decree of sale. All claims against the road not presented, with proofs, before Sept. 1, will be finally barred.

**Indiana, Bloomington & Western.**—It is reported that in case this company cannot secure control of the St. Louis Division of the Toledo, Cincinnati & St. Louis, it will shortly begin work on the extension of its leased Indianapolis, Decatur & Springfield line to St. Louis, the company having decided that a St. Louis connection is necessary to its prosperity. It is quite possible, however, that this announcement is made for the benefit of the Toledo, Cincinnati & St. Louis bondholders, upon whom it is expected to have some effect.

**Indianapolis & Evansville.**—The Evansville, Washington & Brazil Co. was reorganized at a meeting held in Evansville, Ind., June 14, and will hereafter be known as the Indianapolis & Evansville Co. Arrangements will shortly be made for the completion of the road.

**Lake Shore & Michigan Southern.**—A dispatch from Franklin, Pa., says that the Mercer County Court, at the suit of certain stockholders of the Jamestown & Franklin road, has issued an injunction restraining the directors of that company from extending the lease of that road to the Lake Shore & Michigan Southern Co. for 30 years. This injunction, if sustained, would deprive the Lake Shore of its direct connection with the oil regions, as the Jamestown & Franklin road extends from Jamestown to Oil City. The Lake Shore owns a large interest in the road, and will certainly not permit the injunction to stand, if it can be set aside. The dispatch does not give the grounds upon which the injunction was granted.

**Long Island.**—The charter of this company was granted April 24, 1834, and the company was shortly afterwards organized. The fiftieth anniversary of the road was therefore celebrated on June 18. On that day the officers and directors of the company with a number of invited guests left Long Island City and took a trip over the road and several of its branches, the excursion concluding with a clam bake at Shinnecock.

**Louisville & Nashville.**—The City Council of Louisville, Ky., on June 12, adopted resolutions requesting the commissioners of the sinking fund to investigate the affairs of this company with a view to ascertaining whether the city is liable to sustain any loss by reason of the large interest which it holds in the company's stock. It is understood that the sinking fund commissioners approve of the recent change in the management and the election of Mr. Smith as President, and will take no active steps in the matter unless there should be further trouble.

**Louisville, New Albany & Chicago.**—This company has completed an extension of its Air Line Division near Hammond, Ind. This extension is 1½ miles long, and completes the connection of the road with the Chicago & Western Indiana. Heretofore it has used the Chicago & Atlantic tracks for this distance, but has now its own line.

**Louisville, New Orleans & Texas.**—A meeting is called to be held in New Orleans, July 22, for the purpose of completing the consolidation of the several companies making up this through line from Memphis to New Orleans. The companies are now organized in Louisiana and Tennessee are the New Orleans, Baton Rouge, Vicksburg & Memphis, the New Orleans & Mississippi Valley, the Memphis & Vicksburg, and the Tennessee Southern. At this meeting the organization will be completed and officers chosen for the consolidated Louisville, New Orleans & Texas Company.

**Mexican Central.**—At a meeting held in Boston, June 13, the directors voted to fund the next three coupons on the first mortgage bonds in five-years scrip bearing 10 per cent. interest and redeemable at the pleasure of the company in any shorter time. The amount of these coupons will be about \$3,840,000. The scrip will be secured by the deposit in trust of the coupons and by Mexican Government subsidy certificates, amounting to \$5,760,562. The proposition will be formally submitted to the bondholders in a few days.

**Manhattan.**—The following statement is published of the business of all the New York elevated roads for five years past (year ending Sept. 30) and for the eight months of the current fiscal year to May 31:

	Passengers carried.....	Gross earnings.....
1878-79.....	46,045,081	\$3,526,825
1879-80.....	69,831,757	4,612,976
1880-81.....	75,585,778	5,311,076
1881-82.....	86,361,029	5,973,633
1882-83.....	92,174,743	6,386,506
1883-84 (eight months).....	66,335,107	4,624,592

It is estimated that if the increase thus far continues through the remaining four months of the current year, the number of passengers will reach 96,563,000 and the gross receipts \$6,841,900 for the year.

It is stated that the Second Avenue line, which now ends at Chatham Square, is to be extended to South Ferry through Roosevelt and South streets, with stations at all the ferries, thus making a double line from Chatham Square to South Ferry, the new line running directly along the river front of the city.

**Mexican Railroad Notes.**—The following notes are from the Mexican Financier of May 30:

Mr. Delin Sanchez has bought the Carboniferous Railway, 20 kilometers of which are already constructed, and proposes to push it at once to the coal-measures in the southern part of the state of Puebla, so that within a year coal will be laid down in this city (Mexico) at \$5 a ton.

The Mexican Central will at once adopt the use of coal for the use of the locomotives of its passenger trains on all the part of the line between here and Calera, and it is likely that coal will soon take the place of wood altogether on the line. Coal is now used exclusively on the two divisions north of Calera.

The Inter-oceanic Railway, as soon as it makes the connection with the San Marcos Railway at Vireyes, will, according to its regular tariff, established under its concession, carry freight between Mexico and Puebla at \$7 a ton, against \$13, the present rate of the Mexican Railway. The way being such a long one it will not attempt to build up through passenger travel between the two centres, but will run third class on its freight trains for the benefit of the humber classes which care more for economy than speed in travel. When the short line to Puebla is built by way of San Martin Texmelucan, first-class fare between Mexico and that city, which is now \$6 by the Mexican Railway, will be reduced to \$2, which is also the rate between here and Cuautla de Morelos. Work will shortly begin on connecting the San Marcos Railway with the Carboniferous in Puebla, the two stations now being in different parts of the city. It is likely that the Carboniferous will be consolidated with the Inter-oceanic, and pushed rapidly from Puebla to the coal mines which were described in the Financier of week before last. This will furnish coal at a cheap rate, even by the present roundabout line of the company's from Puebla, not only for the Inter-oceanic railway but for all other railways centring in the capital.

The following additional notes are from the Mexican Financier of June 7:

The new local freight tariff of the Mexican Central goes into effect on June 12. It is the first well-arranged tariff which has been devised in this country, and its classification offers the public many advantages, with a great saving in rates, over the old methods. The various regulations and tables have been printed in handsome style in both Spanish and English, and the passenger and excess baggage tariff has appeared in similar shape.

There has been little through travel from the United States lately over the Mexican Central, owing to wash-outs on connecting lines. The track of the Atchison, Topeka & Santa Fe in the Rio Grande Valley has been washed away in exposed places by the first floods which have taken place in New Mexico in May since railways were built there. These breaks have been repaired, and now the Texas & Pacific has been washed out very badly near Fort Worth in Texas, and all trains abandoned.

The hiring of special cars by wealthy people in Mexico is becoming a favorite custom. Last Monday Mr. Pablo Escandon left for Europe by way of New York with his family, going from here to New York in the Pullman buffet car "Zacatecas" engaged for the purpose, and Mr. Carlos Summers with his family has also left for Europe by the same route, chartering one of the private cars of the Mexican Central to go as far as Kansas City. This car will be taken for a similar purpose, on its return, by a prominent gentleman of this city.

**Milwaukee, Lake Shore & Western.**—It is said that this company has disposed of \$1,000,000 of its Northern Extension bonds at par to English parties. The proceeds of these bonds will be used in completing the road to Ashland.

**New York Central & Hudson River.**—This company's statement to the New York Railroad Commission for the quarter ending March 31, gives the following figures for the quarter and for the six months of the fiscal year from Sept. 1 to March 31:

	Quarter.....	Six months.....
Earnings.....	\$4,710,591	\$14,624,719
Expenses.....	4,218,803	8,900,692
Net earnings.....	2,491,698	\$5,724,027
Interest, rentals, etc.....		2,790,000
Surplus.....		\$2,934,027

This surplus is equivalent to 3.28 per cent. on the stock. In the absence of statements for last year no comparisons can be made. The dividends paid for the half-year were 4 per cent.

**New York, Lake Erie & Western.**—This company makes the following report to the New York Railroad Commission for the quarter ending March 31:

Gross earnings from railroad.....	\$4,550,146
" " other sources.....	203,151
Total.....	\$4,852,297
Expenses and taxes, railroad.....	\$4,008,418
" " ferry, etc.....	111,097
Total.....	4,179,515

Total net earnings.....	\$672,782
Interest on funded debt, etc.....	\$1,231,940
Rentals and guaranteed interest.....	267,007
	1,498,947

Deficit for the quarter..... \$826,165

No comparison can be made with the previous year. It must be remembered that this statement covers the worst quarter of the year.

**New York & New England.**—The Receiver has given notice that the running of trains over the Dedham branch will be discontinued at the close of this month. In January last the number of trains was reduced and a careful account kept and the Auditor now reports that it costs the road about \$47 a day to run trains over the branch while the average income is only \$17 a day. If there was a probability of a sufficient growth of the traffic to justify their continuance the trains would be kept on. The Receiver



says that as soon as the service was reduced a large number of former patrons of the road went to the Boston & Providence road and the number of travelers has diminished rather than increased. Under these circumstances the Receiver does not feel justified in keeping up the train service.

**New York, Philadelphia & Norfolk.**—The grading on this road is now completed to Accomac Court House, Va., 28 miles southward from the late terminus at Pocomoke City, Md. The track has been laid from Pocomoke southward 5 miles and the tracklaying is progressing. South of Accomac the work of grading is being pushed with the intention of completing the road by September next.

**New York, West Shore & Buffalo.**—The following circular is issued by Vice-President Houston, dated New York, June 9:

"You are hereby notified that Hon. Horace Russell and Theodore Houston have been appointed Receivers of the property and estate of this company by orders of the Supreme Court of the state of New York, and of the United States Circuit Court for the District of New Jersey, and that, pursuant to said orders, possession of the railway and property of this company has been surrendered to them, and the same is now subject to their control."

The following circular to agents and conductors is issued by General Auditor J. W. Reinhart:

"Agents will close their accounts with the New York, West Shore & Buffalo Railway Co. by charging themselves with all sales of local and foreign tickets up to and including June 9. They will also charge themselves with all manifests received by them dated June 9 and prior to that date, and with all prepaid charges on manifests made by them up to and including same date. Report Form F. R. 1, for business from June 1 to 9 inclusive, must be made on or before June 20. The balance on this report must show, separately, the amount of cash unremitted, the amount for freight actually on hand undelivered, and the amount of charges on Company and construction material still being carried pending relief. Separate statements in detail of such uncollected amounts to be furnished on Form F. R. 15. New accounts, in the usual form, must be opened by each agent with the Receivers, commencing with ticket sales and manifests made on June 10, which accounts must not include any business prior to that date. Reports F. R. 1 must be rendered, covering business from June 10 to 30, inclusive, agents carrying to their debit the balances as shown on their reports of June 9. Conductors will make their reports, on account of the railway company, up to and including June 9, including all collections up to that date. All reports and collections subsequent to June 9 to be reported on account of the Receivers. Junction agents will make settlements with connecting lines for interchange of traffic, including June 9, and render reports of same on Form F. R. 48, on account of the railway company. The regular weekly settlements to follow, June 16 to 18, inclusive, etc., will be on account of the Receivers. All reports and correspondence, pertaining to business subsequent to June 9, should be headed Horace Russell and Theodore Houston, Receivers, over the name of the railway. Agents will change blanks in their possession accordingly."

The following additional circulars from the General Auditor are addressed to connecting lines:

"The New York, West Shore & Buffalo Railway having passed into the possession of Receivers on June 9, foreign companies are respectfully asked to make separate ticket and car service reports from June 1-9, inclusive, to the New York, West Shore and Buffalo Railway Co., and June 10-30, inclusive, to the Receivers. All reports should be made to J. W. Reinhart, General Auditor, at No. 15 Broad street, New York."

"Foreign roads are respectfully requested not to make drafts for ticket balances due by the New York, West Shore & Buffalo Railway, until otherwise advised. The road passed into the possession of Receivers on June 9, who will arrange at an early date for payment, of which due notice will be given by them."

**Northern (New Hampshire).**—At the special meeting in Concord, N. H., June 18, the stockholders voted, by about 7 to 1, to ratify the proposed lease of the road to the Boston & Lowell Co. The lease is for 99 years, at a rental equivalent to 5 per cent. yearly on the stock.

**Oregon Railway & Navigation Co.**—At the annual meeting in Portland, Oregon, this week, the old board was re-elected with two changes of no special importance. A majority of the stock was voted by the agent of the Farmer's Loan & Trust Co., of New York.

With regard to the recent default in payment of interest on the bonds of the leased Oregonian Railway, an officer of the company states that the leased line, which consists of two parallel branches in the Willamette Valley, has never earned its running expenses. It was originally built to run from Portland up the valley and would come into direct competition with the lines of the Oregon & California road, but would not in any way injure those owned by the Oregon Railway & Navigation Co. The lease stopped the completion of the road to Portland and it now remains without any terminus of importance. The rental charge under the lease is about \$190,000 yearly, which has always been a burden upon this company without producing any benefit whatever, the only party it benefited being the Oregon & California Co. When the present management took charge of this company they found many matters which they could not understand, but this lease was so unnecessary and of so extraordinary a nature that they considered it their duty to look carefully into the matter, and concluded that in this case the interest of the company had been sacrificed to that of the Oregon & California, an entirely distinct corporation. The directors, therefore, considered it their duty to protect the stockholders from such an injustice, and submitted their lease to counsel who pronounced it illegal and *ultra vires*. On receiving this opinion they refused to pay any more rent and put the matter in the hands of counsel, believing it their duty to let the courts decide whether the stockholders of this company should be taxed an amount nearly equal to 1 per cent. on their capital for the purpose of protecting the stock of another corporation. The statement further says that the managers regard any injury which may be done to innocent holders of the bonds of the Oregonian Railway Co., but nevertheless deem it their duty to protect the stockholders of their own company.

**Philadelphia & Reading.**—It is reported that the employees of the Lehigh & Susquehanna Division of the leased New Jersey Central line have completed arrangements for a general strike, provided they do not receive their pay for April and May during the present week. No payments have yet been made on the New Jersey Central Division for May, although it is now past the usual time. The employees of this division in New Jersey have been paid for April, but those west of Easton have not yet received their April wages.

A dispatch from Wilkes-Barre, Pa., says that the employees at the Ashley shops propose a strike of a novel nature. They held a meeting at the shops on June 17, when several

propositions were discussed as to the best means of forcing their employers to come to terms. It was finally resolved that if the pay-car does not come on Friday the whole force will march in a body to the Court-house in Wilkes-Barre and demand a permit to admit them to the County Poorhouse. The men are orderly and no disturbance is feared.

In Philadelphia, June 17, the Special Master reported to the Court that it had not been shown that any party could be injured by an order permitting the Receivers to borrow money and that no opposition had been made to the same. The Court therefore made an order giving the Receivers authority to borrow an amount not exceeding \$2,000,000, for the purpose, first of retiring and paying the coupons which fall due June 1 on the consolidated mortgage bonds, and secondly for the payment of wages due the employees both of the railroad and of the Reading Coal & Iron Co. The Court further authorized the Receivers to issue certificates for the money so borrowed in the form recommended by the master, bearing interest at a rate not exceeding 6 per cent. for the money borrowed to pay wages, and not exceeding 5 per cent. for the money borrowed to pay the over-due coupons. The order further authorizes the receivers to issue certificates bearing interest not exceeding 4 per cent. to the creditors of both companies having claims for materials and supplies furnished since April 1 last, provided that the aggregate amount of certificates so issued shall not exceed \$1,000,000. This order, it will be seen, authorizes the issue of certificates to the amount of \$3,000,000 in all, the whole amount to pay claims already accrued.

**Pine Bluff & Swan Lake.**—This company has filed articles of incorporation to build a railroad from Rob Roy, Ark., on the Texas & St. Louis road, southeast to Swan Lake, a distance of 12 miles.

**Pittsburgh, Fort Wayne & Chicago.**—The committee appointed at the annual meeting to present reasons to the stockholders why they should vote for the acceptance of bonds in exchange for their stock has prepared a circular, which is now being distributed to stockholders. This circular states that at the time of the lease it was never contemplated that the special stock to be issued to the lessee for betterments should reach an amount exceeding that of the general or prior stock, thus giving the lessee practical control of the road and making it in effect the sole judge of how the terms of the lease should be construed. This stock, however, has increased so largely in amount that such a contingency is to be looked for, should its issue be continued. However efficient or upright the management of the Pennsylvania Railroad may be, the committee think that it would not be desirable in any case for a lessee company to hold a majority interest and thus have the deciding voice upon any question which may arise between the two companies. The lessee desires the control and practical ownership of the road, and is willing to that end to buy up the general stock, giving in exchange what is practically a permanent mortgage, bearing the same interest which the stock now receives under the lease, and the committee, with the approval of the board of directors, advise stockholders that the offer ought to be accepted.

The suit of the Pennsylvania Railroad Co., brought to compel the issue of betterment stock due under the terms of the lease has, it is thought, been brought more for the purpose of effect upon the stockholders and to induce them to vote in favor of accepting bonds in exchange for their stock. Of course, if this proposition is accepted at the adjourned meeting the suit will be dropped.

**Pittsburgh Southern.**—In Pittsburgh, Pa., June 13, the Court of Common Pleas granted a decree of foreclosure and sale against this road. The aggregate amount of the mortgages is \$1,042,000, and the bonds are held by the Baltimore & Ohio Co., which has for some time operated the road. The sale will pass the complete title in the road to that company.

**Rochester & Pittsburgh.**—It is reported that the New York, Lake Erie & Western Co., offered to compromise its difficulties with this company on condition that the Rochester & Pittsburgh would consent to make a differential rate on coal to Buffalo, giving the Erie an advantage of 15 cents per ton. This proposition was declined, but officers of the Rochester & Pittsburgh offered to go into a pooling agreement with the Erie on the Buffalo coal business, the division of the business to be based on this year's tonnage. No answer has yet been made to this last proposition.

**St. Joseph Valley.**—Contracts have been let for the extension of this road from Buchanan, Mich., south by east to South Bend, Ind., a distance of 13 miles, and from Berrien Springs, Mich., northwest to St. Joseph, a distance of 15 miles. The grading is to be completed by September next.

**St. Louis, Hannibal & Keokuk.**—A number of intervening petitions for the payment of claims for labor and supplies have been submitted to the United States Circuit Court in St. Louis this week. Receiver Case has admitted a number of these claims, where the records of the company show them to be correct, but there are a number the payment of which he will resist before the Court. The Court will probably render a decision in a majority of these by the end of the week.

**San Joaquin & Kern Valley.**—Work will shortly be commenced on this road at Antioch, Cal. The location has been completed from Antioch to Bakersfield, and it is said that contracts have been made for ties and rails for 50 miles of the line.

**Southwestern Arkansas & Indian Territory.**—This company has filed articles of incorporation to build a railroad from Warren, in Bradley County, Ark., to Okolona, and thence to the Indian Territory line in Polk County. The distance is about 140 miles.

**Tallahadega & Coosa Valley.**—Track is reported laid on this road to Talladega, Ala., on the Anniston & Atlantic road northward to Renfro, 10 miles. Trains are running, making connections with the Anniston & Atlantic road.

**Texas & Pacific.**—It is said that several meetings of the board have been held to discuss the question of providing for the interest payments falling due July 1 and Aug. 1. A special committee has been appointed to report on the question of paying the coupons on the New Orleans Pacific bonds falling due July 1.

**Union Pacific.**—Surveys have been completed for a branch line leaving the Omaha & Republican Valley road at Valparaiso, Neb., and running southwest to Red Cloud, a distance of about 110 miles. This line cuts diagonally across both the lines of the Chicago, Burlington & Quincy in Nebraska, and will to a considerable extent compete directly with those lines.

A survey has been made for a branch to the Yellowstone National Park. The proposed line starts from China Point, Idaho, on the Utah & Northern Division, runs eastward to Snake River and thence across the Rocky Mountains to Madison River and down that river to a point below Gallatin, Montana. Two lines were surveyed across the Rocky

Mountains, one by way of Rea Pass and the other by the Tahgee Pass.

The Wood River Branch of the Oregon Short Line is to be extended from Hailey, Idaho, north to Ketchikan, a distance of 13 miles. The engineers are now locating this extension.

The company's statement for April and the four months ending April 30 is as follows:

	1884.	1883.	1884.	1883.
Earnings..	\$2,128,965	\$2,363,277	\$7,188,553	\$8,345,113
Expenses..	1,177,025	1,079,243	4,887,961	4,201,507
Net earn.	\$951,940	\$1,284,034	\$2,300,592	\$4,143,606
P. c. of exp.	55.4	45.7	68.0	50.3

This shows for the four months a decrease of \$1,156,560, or 13.8 per cent., in gross earnings; an increase of \$686,454, or 16.3 per cent., in expenses, and a resulting decrease in net earnings of \$1,843,014, or 44.5 per cent. The statement includes the leased lines; but it is understood that the St. Joseph & Western, which is not worked by this company this year, is excluded last year also.

At a meeting of the board held in New York, June 18, the following resolution was adopted: "That in lieu of declaring the regular dividends, payable on the 1st proximo, the sum of \$718,000 be paid from moneys now in the treasury to the United States to meet the demands of the Secretary of the Interior for payments under the Thurman act for the year ending Dec. 31, 1883."

At the same meeting the long talked-of change in the presidency was made, Mr. Charles Francis Adams, Jr., being chosen to succeed Mr. Dillon.

Mr. F. L. Ames states that the floating debt of the company, after deducting the cash on hand, bills receivable, materials, and securities available for immediate use, amounts to about \$3,500,000, which is much less than had been currently reported. A report on the condition of the company has been prepared by experts in the employ of the government, and has been submitted to the Secretary of the Interior, some extracts from which are given below.

With respect to the report prepared by experts for the Interior Department, a dispatch from Mr. Charles Francis Adams, Jr., at Washington, June 17, says: "The Judiciary Committee matter settled in form proposed by us, and the whole matter has been put over. The accountant's report, which has gone in, agrees exactly with Ames's figures, and without any criticism or charge against the company; the reports about its contents are all manufactured and false."

The expert's report to the Secretary, as telegraphed from Washington, contains a statement showing the revenue and expenditure of the company for the five months ended May 31, 1884, as follows:

Gross earnings .....	\$9,222,765.73
Operating expenses, entire system .....	\$6,184,833.65
Discount and interest .....	77,237.59
Interest on first mortgage bonds .....	1,057,000.00
Interest on other funded debt .....	875,000.00
U. S. requirement, 5 per cent. and 25 per cent. .....	301,874.76
Company's sinking fund .....	192,000.00
New construction .....	32,612.43
New equipment .....	146,304.86
Expenses Land Department, Union Division .....	50,000.00
Dividend of 1 1/4 per cent. on April 1, 1884 .....	1,065,197.00
Total expenditure .....	\$9,952,180.29
Gross earnings .....	\$9,222,765.73

Deficit five months .....

A memorandum is attached to this table, stating that the company estimates that \$260,000 will be available for dividend on July 1, and that to declare a 1 1/4 per cent. dividend (which would amount to \$1,065,197) the company would have to borrow about \$1,400,000.

Another statement shows the financial condition of the company on March 31, 1884. The gross floating debt amounted to \$11,400,099.32, made up as follows:

Bills payable .....	\$5,833,434.22
Accounts payable .....	1,442,107.91
Pay rolls and vouchers .....	2,442,821.77
Dividends unpaid .....	1,143,742.53
Coupons unpaid .....	308,992.90
Called bonds .....	116,000.00
Total floating debt .....	\$11,400,099.32
Deduct available assets:	
Cash on hand .....	\$840,377.06
Sinking fund in hands of trustees .....	116,000.00
Bills and accounts receivable .....	3,038,292.22
Bonds and stocks .....	2,074,064.05
Total .....	\$6,068,732.33

Net floating debt, March 31, 1884 .....

The report adds: "Were the item of fuel, material and stores on hand—\$2,622,777.37—deducted, as is often the practice of accountants in estimating net floating debt, this sum would be reduced to \$2,708,618.62; but this office does not regard it as an available offset to the floating debt when the road is in active operation, and has therefore excluded it."

The total debt of the Union Pacific Railway Co. on March 31 was \$163,107,389.34. The total assets were \$239,200,573.95, leaving a surplus, including land sales, of \$15,224,685.61, or excluding land sales, of \$4,311,639.55.

The Commissioner says that a large portion of the floating debt is a gradual accumulation from expenditures made out of surplus current earnings of the company in the construction of branch lines, the stocks and bonds of which in whole or in part are held by the company to the amount of \$37,003,869.51, and are available as a set-off against the floating debt or for any other debts of the company. A large proportion of these stocks and bonds are "quick" assets, and could be readily converted into cash. Many of the branch lines are wholly the property of the company.

**Wabash, St. Louis & Pacific.**—In St. Louis last week the Central Trust Co., of New York, as trustee under the general mortgage, filed a cross-bill in the United States Circuit Court. The bill, after setting forth the circumstances under which the mortgage was executed and the complainant made trustee, states that default has been made on the June interest on said bonds, and under the terms of the mortgage the Central Trust Co. therefore asks for possession of the property and for leave to foreclose the mortgage and sell the road in satisfaction thereof. This is an entirely new proceeding, and is in opposition to the proceedings under which the receivers now in possession were appointed.

A number of the company's notes indorsed by Jay Gould, Russell Sage, Solon Humphreys and Sidney Dillon, which matured in May and the early part of June, have been paid off. It is understood that there are about \$2,000,000 of these notes now outstanding, but under the present arrangements they will be paid as they mature, the Receivers having secured the necessary authority from the Court. Holders will be offered the option of taking 6 per cent. receiver's certificates for the notes.

In the absence of any official statement the floating debt of the company has been reported to be as high as \$5,000,000, although another and more probable report puts it at about \$4,500,000, including the notes above mentioned,